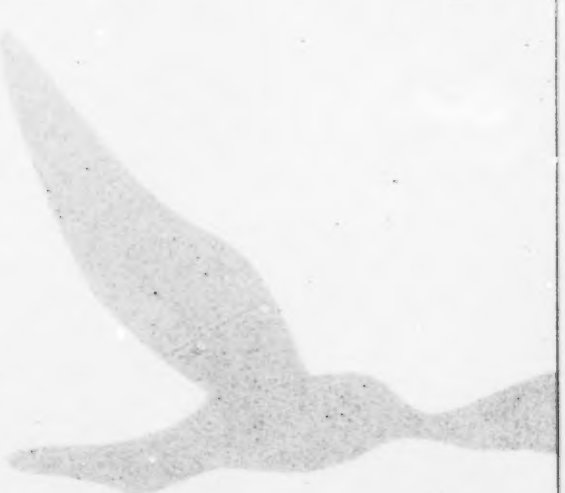
Stewardship and Sustainability

A Renewed Conservation Strategy for Prince Edward Island

CONSULTATION DRAFT



PRINCE EDWARD ISLAND
DEPARTMENT OF THE ENVIRONMENT

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APRIL 1992

PRINCE EDWARD ISLAND
DEPARTMENT OF THE ENVIRONMENT

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YOUR COMMENTS ARE IMPORTANT

Stewardship and Sustainability outlines commitments, approaches and strategies. The support and involvement of all Islanders is essential in order to achieve the goals of this Conservation Strategy.

You can express your views on the issues, initiatives and ideas on the future of our province in several ways:

- Write, fax or phone

Prince Edward Island
Department of the Environment
11 Kent Street
P.O. Box 2000
Charlottetown,
Prince Edward Island
C1A 7N8

Phone: 368-5000 Fax: 368-5830

- Respond to one of the specific sections of the document in areas of your particular interest.

- Take part in one of the public consultation sessions in the fall, 1992.

We at the Prince Edward Island Department of the Environment want to keep you informed about the consultation sessions to be held later this year.

Please complete the form on the last page of this booklet and send it to us. We will make sure you are aware of the next steps in the consultation process.

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MINISTER'S MESSAGE

"And yet we cannot define the charm of Prince Edward Island in terms of land or sea. It is too elusive - too subtle. For lands have personalities just as well as human beings; and to know that personality you must live in the land and companion it and draw substenance of body and spirit from it; so only can you know a land and be known of it."

Lucy Maud Montgomery

Our Island has changed dramatically over the years, but the passionate affection Lucy Maud Montgomery describes is familiar to Islanders and visitors. Prince Edward Island was one of the first areas to be settled and our natural assets - air, water, land, soils, forests, dunes and wildlife - have supported our economy and way of life ever since.

Stewardship and Sustainability, A Renewed Conservation Strategy, is an attempt to steer a new course toward our environmental future. It reflects an awareness of the vulnerability and finite nature of the resources within our stewardship. Our ultimate goal is a sustainable future - where both our standard of living and quality of life are enhanced - where there can be economic prosperity as well as a healthy environment.

I invite all Islanders to participate in creating a future in which the environment and the economy support each other. The commitments, approaches and strategies outlined in this document are only meaningful if they are vigorously pursued and put into effect. Most of all, they need the support and involvement of all Prince Edward Islanders.

No single individual, group, industry or government is responsible for all the environmental problems. Solutions will require cooperation and collaboration from all sectors of our community to meet the challenge. Everyone will have a part to play as we make the transition to sustainable development in Prince Edward Island.

I welcome your suggestions and comments. Later this year, consultation workshops will be held to encourage discussion and debate.

Together, we can shape the future with actions and decisions that will lead to the proper long-term management of our natural resources.

Gilbert R. Clements
Minister of the Environment

EXECUTIVE SUMMARY

In 1987, Prince Edward Island developed a provincial conservation strategy. It identified the connection between our natural resources and the future of our resource-based industries. Many of the recommendations of the *Conservation Strategy* were directed at government and in fact, many have been implemented. Visible progress has been made in restoring the environment and a stronger conservation ethic is evident.

Stewardship and Sustainability, A Renewed Conservation Strategy, has been developed by the Prince Edward Island Department of the Environment as a framework for action. This Strategy builds on the work and accomplishments of the original *Conservation Strategy* and broadens the focus to include all aspects of sustainable development.

An ecosystem approach to resource management is an important theme of *Stewardship and Sustainability*. Greater coordination and cooperation among those responsible for managing natural resources is required. Public support and involvement are critical. Ultimately no conservation strategy can succeed unless everyone behaves as a conservationist.

New and stronger partnerships will form the basis of our cooperative efforts. *Stewardship and Sustainability* emphasizes the need for greater coordination among governments, industry, environmental groups and individuals to identify and implement achievable and reasonable strategies to reach the goals.

THE GOALS

Six important goals have been identified. These main goals cannot be considered as separate elements. They are all essential to the quality of our environment.

- REDUCE SOIL EROSION
- MAINTAIN AND IMPROVE WATER QUALITY
- REDUCE SOLID WASTE
- MAINTAIN AND IMPROVE ECOLOGICAL DIVERSITY
- MAINTAIN AND IMPROVE AIR QUALITY
- INCREASE PUBLIC INVOLVEMENT

Background information is presented to introduce the problems and trends related to the goal. Principles and criteria are described that will guide the ways we achieve the goal. Each section describes measures and standards that will be used to evaluate success.

Strategies and future directions are outlined for each goal. The process of responding to environmental problems is not one choice but a series of interconnected choices. Long-term plans are presented.

IMPROVED APPROACHES

A new direction involves a change in emphasis and attitudes. The second chapter describes some of the tools and techniques that the Department of the Environment proposes to use improve our approaches to environmental issues. Environmental impact assessment, environmental enforcement, partnerships and the quality of government services are highlighted.

THE NEXT STEP

This renewed Conservation Strategy takes the first steps in a new direction. All branches and levels of government, business and industry, community organizations and individual Islanders are invited to participate in public consultations in order to better define the better strategies and their implementation. Successful implementation of this Strategy will require coordinated effort by all Islanders.

Together, we can shape the future with actions and decisions that will lead to a sustainable future.

Journalist Warner Troyer paraphrased the "golden rule" just a little: "Do unto the environment as you would have it do unto you." We don't own the planet and its resources. We merely hold them in trust for future generations.

Islanders are caretakers of one of the very smallest pieces of our Earth's environment. The landscape of the Island is a complex expression of our culture. The lush, pastoral, seaside landscape forms the familiar image of Prince Edward Island; it reflects what we have inherited - fundamental values, an ethic of caring and of shared resource. It is these very qualities that make the Island increasingly special in a larger world where such qualities are rare. Our heritage and traditions of working the land and harvesting from the sea are stamped on our landscape. The Island sense of community and concern for the land are also part of our heritage.

We shall leave this heritage behind us as an indelible imprint on our Island and on the lives of our children.

The purpose of this document is to set forth a renewed strategy to ensure that our stewardship of this Island's environment sustains our heritage.

THE FIRST CONSERVATION STRATEGY

In 1987, Prince Edward Island was the first province to adopt a *Conservation Strategy*. The Strategy was developed from discussions with a broad network of interested citizens and groups.

The provincial *Conservation Strategy* reflected an awareness of the vulnerability and finite nature of our natural resources. It outlined a plan for government to develop a corporate conservation ethic. The plan of action has been used to guide the management of our renewable resources.

The *Conservation Strategy* focused the efforts and energy of government, industry sectors, organizations and individuals on five broad environmental issues:

Soil Degradation and Conservation
Water and Wildlife Management
Water Quality and Pollution Control
Landscape Protection
Coastal Zone Management

The Strategy was aimed at every sector of the Island economy and planned to coordinate the efforts of both the public and private sectors. It identified the connection between the quality of our natural resources and the future of our resource-based industries.

The authors recognized that it takes years to instill environmental conservation in the daily decision-making of the community at large.

Such was the vision of the first *Conservation Strategy* that it identified the barriers to its own implementation. In some areas, the authors were able to overcome the obstacles through good planning. In other cases, the limitations were entrenched in the policies and programs of government where change comes more slowly. Many of the recommendations of the *Conservation Strategy* were directed at government and in fact, many have been implemented.

Visible progress has been made in restoring the environment and a stronger conservation ethic is evident. Islanders have shown they are willing to go beyond tacit support; we have more examples of active collaboration and leadership in the private sector.

The achievements of the *Conservation Strategy* are a result of a great deal of public interest and involvement and have depended on cooperation and support from many sectors.

STEWARDSHIP AND SUSTAINABLE DEVELOPMENT

The concept of sustainable development is the central theme of the World Commission on Environment and Development (Brundtland Commission). Since the Commission's report in 1987, the concept has received widespread support establishing as a principle that a sus-

INTRODUCTION

tainable economy depends on a healthy environment.

The definitions are very simple:

The environment is where we all live.

Development is what we all do..

By definition then, we are all environmentalists if we care for the survival of our planet and the future of our children.

The Government of Prince Edward Island, along with governments in other jurisdictions, recognized the need to examine the link between the environment and economic development. In 1989, Premier Joseph Ghiz appointed the Prince Edward Island Round Table on Environment and the Economy to advise him with respect to environmentally sound economic policies and strategies.

Early in 1990, the Round Table released a report on sustainable development initiatives within the provincial government. Although the work of the Round Table has focused on the traditional roles of the government departments, they have a significant opportunity to foster cross-sectoral initiatives.

The role of government will be to do the things that government can do well - setting standards in a democratic way and ensuring overall compliance. It is fair to say that the concept of sustainable development has altered the traditional thought processes of the private sector and government when looking at development and associated environmental impacts. It is a healthy change.

Although the concept of "sustainable development" is not generally understood by the public, there is a fairly high level of belief by Islanders that environmental progress and a healthy economy go hand in hand. A collective commitment to a sustainable society is building but it is a slow process.

The words "ecology" and "economics" spring from the same Greek root - "eco". The Greek "eco" described either a house or the management and stewardship of a household.

Stewardship is a fair description of the task we face in our Island household. The term stewardship means the caring for and responsible use of property and resources. In medieval times, most communities had a "common", a meadow or square where everyone's cattle grazed, where all members of the community shared a resource and a responsibility. Today that "common" spans the globe. We have a right to use our common resources, but we also have responsibilities. Stewardship also means caring about how our activities affect the property and resources that are common to everyone.

Stewardship of our environment calls for more than adherence to a set of rules. Elements of stewardship include the principles of sufficiency - using only what we need, and a responsibility to care for the natural world for its own sake, quite apart from associated human benefits. Stewardship implies that our province will continue to be developed. The question is whether we have the wisdom to develop in a way which nurtures the environment of our province, rather than considering our narrow self-interest.

SEARCHING FOR SOLUTIONS

In February, 1990, Prince Edward Island Environment Minister, Gilbert R. Clements, and his Department, hosted a conference to provide an opportunity for Islanders to participate in discussions on a variety of environmental issues. "Our Island Environment: Searching for Solutions" was attended by over 250 delegates from across the Island..

There were many suggestions and recommendations for addressing environmental issues, and in some cases, specific resolutions were presented. These concerned Islanders told Government about their concerns and priorities.

As it developed the Green Plan, the federal government held public workshops to encourage debate and discussion of environmental issues. Government, industry and community representatives, and many interested

individuals participated in these consultations in 1990.

For almost two years, the Royal Commission on the Land conducted research and listened to Islanders. The 1990 *Report of the Royal Commission on the Land* heard great concern for dealing with environmental problems. In many cases, there is little distinction between environmental issues and land use issues; if land use is carefully managed then some environmental problems can be avoided. Not surprisingly, this conclusion was also reported by the 1973 *Royal Commission on Land Use*.

Several Regional Advisory Councils have sponsored workshops to focus attention on regional environmental concerns. Public hearings were held to review the proposed Coastal Development Policy in 1991, and environmental protection was at the forefront of the concerns. The environment was a dominant concern throughout the Fixed Link hearings.

Islanders, on many occasions, have told government about their environmental problems and concerns. Sometimes, the messages are contradictory. People have different views about how best to manage our resources. Environmental problems are diverse and our assessment of what constitutes a problem or what is a social risk often changes.

The 1987 Report of the *Prince Edward Island Program and Expenditure Review Commission* summed up this problem. "It is very difficult for elected officials and government employees to give priority for the long term interests of the province as a whole while having to deal primarily with the concerns and needs of individuals and interest groups."

Stewardship and Sustainability, A Renewed Conservation Strategy has been developed as framework for action - an outline of our future direction.

It recognizes that the process of responding to environmental problems is not one choice but a series of interconnected choices over time and across specific circumstances.

PROCESS AND PRIORITIES

In late 1991, in response to requests from the province's Environmental Advisory Council and the Premier's Round Table on the Environment and Economy, the Prince Edward Island Department of the Environment started to prepare a new strategy for sustaining the quality of our Island's environment.

Under the general direction of the province's Environmental Coordinating Committee of Deputy Ministers, a series of workshops and planning sessions were held. Staff from several departments met to identify critical issues, clarify the mission and goals of the Department of the Environment and to develop long term strategies for reaching those goals. The importance of setting standards and measuring our progress towards them was stressed.

The opportunities provided by greater coordination among government, industry and community groups are seen as key elements in implementing achievable and reasonable measures for environmental protection. Greater public involvement in environmental protection through an enhanced sense of stewardship and understanding is critical. Waste management will continue to be an important issue as we try to keep our Island clean. Although significant improvements in agricultural land use practices have occurred in the past five years, agricultural impacts on the environment continue to be a critical issue both on and off the farm. The protection of our groundwater resources and enhancement of our surface waters and estuaries are essential. This plan will propose strategies to address these and other important environmental problems.

A CHANGE IN STRATEGY

The reaction of the past - repairing and restoring - has proven to be economically, socially and environmentally expensive. Experience demonstrates that if we keep on structuring activities under traditional environmental,

sectoral or institutional frameworks then we shall continue to act in traditional ways.

Much of the existing structure of environmental effort, in Prince Edward Island and right across Canada, reflects a past emphasis on conventional pollutants, single medium approaches, and fragmented responsibility for resource management. It has been frustrating and often wasteful to tackle problems piecemeal. One agency's solutions are often another's problems. It is important to move from treating isolated problems to recognizing the interdependence of natural elements. In protecting and enhancing habitat, the entire ecosystem must be considered. Soil conservation efforts are more effective when planning is undertaken for the whole watershed.

Although the work of restoring environmental damage is far from complete we must take a crucial step toward long-term solutions. We need to shift to a strategy that anticipates and prevents environmental degradation. Resource conservation is first and foremost a matter of prevention.

Our economy on Prince Edward Island is more and more affected by global issues. Economic issues such as PVY[n] and international trade discussions relating to supply management in agriculture could potentially change the face of agriculture on Prince Edward Island, with associated changes in the environmental impacts.

Canada is entering an era where much of its environmental policy will also be influenced by global initiatives. The most obvious examples of this phenomenon are outlined later in the section on our atmosphere. Canada's domestic policies in a number of areas will be under intense scrutiny by the international community. As concern about the environment and health continue to influence public opinion, tough environmental standards may become another form of trade barrier.

The term "strategy" is a key one. It answers the call for a broader view of how we plan and do things. It calls for goals and a careful consideration of the ways to reach them. A strategy seeks to incorporate different means such as law, training, environmental assessment and many others. A good strategy crosses all sectors of our economy and seeks to have activities of different kinds related to one another.

The 1990 *Report of the Royal Commission on the Land* places government responsibility in perspective; "government action is only one part of the equation which will assure the continuance of our land as we wish it both in our hearts and in our minds."

Government will focus on broad elements in striving to improve the decision-making process:

1. Ecosystems. Rather than the single-species approach of the past, we must integrate all aspects of the ecosystem in managing our natural resources.
2. Accountability. The Department of the Environment will be responsible for coordinating Government's response to environmental issues.
3. Integration. Through instruments such as Environmental Impact Assessment, decisions about the economy and the environment of Prince Edward Island will be integrated.
4. New policy instruments will be explored as we develop made-in-Prince Edward Island solutions.
5. Information. Islanders must be better informed in order to participate in environmental protection.

Successful implementation of this Strategy will require a comprehensive and coordinated effort by all Islanders. Our shared environment is just too complex and too important to expect governments, with their limited resources, to provide and implement all the solutions.

We recognize that no single government, business group or individual can meet our environmental challenges alone . New and stronger partnerships will form the basis of our cooperative efforts.

It is the mission of the Prince Edward Island Department of the Environment to ensure the quality of the Island's natural environment. It is critical for us to have good results in safeguarding the quality of our air, water, land, flora and fauna our ecosystem. This result can't be considered in isolation, other requirements must be met.

Economic growth and development must continue. Government must meet essential needs for jobs, food, energy, water and sanitation. Our will to address environmental challenges must be supported by strong national and provincial fiscal positions. On the other hand, our resource based industries depend on the continued quality of our natural resources.

The Department of the Environment's activities will be determined by the limits of human and fiscal resources. The cooperation of other government agencies is crucial to obtain acceptable results in ensuring a quality environment. The unlimited energies of the people of Prince Edward Island must support sustainable development.

Six important goals have been identified to help us achieve the vision of a clean Island:

1. REDUCE SOIL EROSION
2. MAINTAIN AND IMPROVE WATER QUALITY
3. REDUCE SOLID WASTE
4. MAINTAIN AND IMPROVE ECOLOGICAL DIVERSITY
5. MAINTAIN AND IMPROVE AIR QUALITY
6. INCREASE PUBLIC INVOLVEMENT

These are not listed in order of priority. These main goals cannot be considered as separate elements. Each goal must be met. They are all critical to the quality of our environment.

FRAMEWORK FOR ACTION

A new course involves a change in ways and attitudes. This renewed Conservation Strategy just takes the first steps in this new direction in order to better define the proper approaches.

This report includes two important parts. The first part dealing with each of six goals. Background information is presented to introduce the problems and trends related to the goal. Principles and criteria are described that will guide the ways we achieve the goal. Each section will describe measures and standards that will be used to evaluate success.

Strategies and future directions are outlined for each goal. This is the most important part of the report where long-term plans are presented.

The second part of the report describes some of the tools that will be used by the Department of the Environment to improve our approaches to environmental issues.

MEASURING OUR PROGRESS

How will Islanders know if we are successful in achieving these goals? This is part of the challenge.

Monitoring the quality of the environment is an integral part of understanding the impacts of human activities. Changes in human activities are often initiated by perceived changes in quality of the air, land, water or living resources.

Environmental indicators are key measures which may show the health of the natural environment, the source and quantities of activities, and the kinds of activities intended to enhance, clean-up, prevent or otherwise address sources of stress.

Indicators sound alarms about potential threats to humans and ecosystems as a result of changes in the natural environment. They may facilitate effective targeting of attention and resources to specific problems, geographic areas or sectors or greatest importance to environmental health. It is important to measure whether specific objectives and targets set in relation to environmental programs are being met. The public must be satisfied that we are

achieving our goal of a clean and healthy environment.

To measure the effectiveness of this Strategy government needs to develop targets and time tables. In some activities, important milestones have been identified. Tough choices will have to be made in adopting targets and in assigning the resources necessary to achieve them.

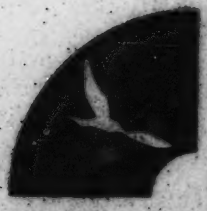
PRINCIPLES

The following principles have been adopted to guide the activities of the Department of the Environment specifically and the environment-related activities of government generally.

1. The protection of public health and property have priority.
2. The public has a right to be informed about the quality of their environment and to be consulted about programs and laws in respect of it.
3. Environmental protection and enhancement is a responsibility shared by all government agencies, jurisdictions, industry and the public.
4. The Province will ensure that its activities and those of citizens do not harm public health, property or the environment.
5. There is an irrefutable linkage between the economic development of the province and the quality of its environment. Planning must take into account this linkage.
6. The natural environment has a limited ability to assimilate wastes, a limit which must be respected.
7. To ensure their continuing benefits, Crown owned resources must be managed in a wise and caring fashion.
8. The cost of environmental protection systems should be borne by the waste generator except where the Province has determined that it should be involved as part of a strategy for industrial development.
9. It is important to protect examples of environmentally significant areas and to preserve and enhance the fish and wildlife population of the Island.
10. Governments have a responsibility to ensure that adequate preparedness exists to respond to environmental and other emergencies.
11. Citizens have a right to enjoyment of their own or public property without interference by excessive noise, odours or other instrusions to the natural environment.

3

GOALS AND STRATEGIES



GOAL: REDUCE SOIL EROSION

BACKGROUND

Agricultural Soil Erosion

Agricultural soil erosion is widely accepted as a long-standing, serious environmental problem in Prince Edward Island. Some of the first research relating to this problem was carried out by the local experimental station during the 1960's. Since then, the issue of soil erosion has been well documented.

In 1979, A Report to Executive Council *Soil Erosion on Prince Edward Island*, described agricultural soil erosion as severe and recommended several strategies including "organic" farming and promoting livestock production. Further evidence of the problem is provided in the well known 1984 Senate Report *Soil At Risk*, a 1986 Science Council of Canada report called *A Growing Concern- Soil Degradation in Canada* and, more recently, in the *Report of the Royal Commission on the Land* which was released in October, 1990. The *Conservation Strategy for Prince Edward Island*, developed in 1987, states that "soil degradation, primarily erosion, is the single most important resource problem facing the province".

The fragile structure and low organic matter levels of Prince Edward Island soil combined with significant areas of row crops results in serious soil erosion. Studies undertaken in the mid 1970's in the Wilmot and Dunk watersheds demonstrated soil losses ranging from 18.7 tonnes per hectare to 41.1 tonnes per hectare on land used to grow potatoes. The estimated annual rate of soil formation in Prince Edward Island is approximately 6.5 tonnes per hectare.

Soil degradation results in losses of soil quality and, therefore, productivity. These losses often must be offset by increasing applications of fertilizers, thereby lowering margins. A study commissioned by Agriculture Canada in 1986 estimated the annual cost of soil degradation in Prince Edward Island to be $15.2 million, which represents approximately 6 percent of 1989 farm cash receipts.

Two surveys undertaken by Agriculture Canada indicate that producers, in general, agree that soil erosion is affecting agricultural productivity. However, farmers are not convinced that the severity of their individual erosion problems warrant the perceived costs associated with the implementation of soil conservation practices. This reluctance is also compounded by the fact that these costs are often incurred in the short-run, whereas the economic benefits of conservation occur gradually over the long-term.

Because of the direct cost implications to farmers of implementing these erosion control techniques, the cost benefit to those farmers and their ability to recover those costs should be given serious consideration.

Both the Federal and Provincial Departments of Agriculture have allocated resources to soil conservation programming. Research has been carried out in the areas of soil erosion and fertility, drainage and minimum and no-till systems. Through federal/provincial agreements, such as the National Soil Conservation Program, incentives have been provided to farmers to demonstrate practices that reduce soil erosion; educational programs have been launched and soil monitoring projects have been carried out. The provincial Department of Agriculture provides extension support through a Soil Conservationist as well as services for soil testing and incentives for liming. An Eastern Canada Soil and Water Conservation Center has been set up to improve knowledge of cost effective soil conservation technology.

Erosion Along Highways

The construction and maintenance of road and highway networks throughout Prince Edward Island are considered to be major contributors to soil erosion, second only to agricultural practices.

Sandstone and gravel-surfaced roads are in themselves an ongoing and constant source

of erodable soil that is weathered away by wind and rain. While these sources may be short-term in nature, the construction and maintenance of the highway system can be a significant contributor to the soil erosion problem. A factor that is frequently ignored is that the highway ditching system provides ready-made drainage channels for silt laden run-off from agricultural fields.

The Department of Transportation and Public Works clearly recognizes the off-site impacts associated with soil erosion and has taken steps to reduce the magnitude of those impacts in recent years. In 1990, the Department commissioned a detailed environmental review of their *Highway Construction Specifications and Methods Manual*. This exercise has led to significant changes and additions to those specifications related to environmental protection. For a number of years, the Department has been employing technologies such as hydroseeding, silt traps and slope mulching to help reduce soil erosion. Other types of construction activity, including property development projects for residential, commercial, industrial and recreational purposes can be significant.

It is important to maintain the integrity and productivity of our soils. In addition, the economic and environmental costs due to the off-site impacts of erosion are extremely important. Sedimentation and over-enrichment of streams, rivers and estuaries as a result of land erosion cause severe damage to fish habitat and the productive capacity of fish and shellfish species. Reduced stocks result in economic losses to the commercial fisheries sector which is a significant contributor to the provincial economy. The tourism sector and the recreational activities of Islanders related to the use of our surface water resources are also important components of our economy.

PRINCIPLES

In considering an appropriate policy or action plan to deal with soil erosion on Prince Edward Island there are certain fundamental principles that must be applied.

1. The use of certain portions of the Island's land base for agricultural, highway and development purposes is essential to the socio-economic well-being of the province.
2. The natural integrity, structure and sustainable productivity of agricultural soils must be maintained or improved.
3. The use of the land-based resources should not degrade, alter or otherwise limit the use of the water-based resources.

MEASURING OUR PROGRESS

The productivity and structural stability of agricultural soils is measured in a number of ways, including the physical make-up of the soil, organic matter content, and the levels of appropriate nutrients to meet crop requirements. Also, the rate of soil loss relative to the rate at which soil is being regenerated is a useful measure of the long term sustainability of the soil base. It is recommended that a soil organic matter content of greater than 2.5% should be the accepted standard. A soil loss rate on agricultural land should not exceed 6 tonnes per hectare per year.

The extent and nature of off-farm impacts, including surface water sedimentation, nutrient enrichment resulting from the application of natural and artificial fertilizers and bacterial contamination, are evidenced by shallowing streams and estuaries, nuisance algae growth and shellfish contamination closures.

STRATEGIES AND FUTURE DIRECTIONS

1. **CONTINUE TO DEMONSTRATE SOIL EROSION CONTROL MEASURES.**

   There has been a dramatic increase in the number of farms and the number of acres of land involved in erosion con-

trol projects in the last two years. It is important to continue to demonstrate the application of agronomic and structural techniques for soil erosion control. Crown-managed lands should become models of good farming practices.

2. **CONTINUE TO PROVIDE INCENTIVES FOR EROSION CONTROL PROJECTS.**
Incentive programs should provide an opportunity for farmers to offset a portion of the short-term costs associated with the implementation of erosion control technologies. Land with high erosion potential should be retired, and setbacks and buffer zones maintained. Establishment of conditional funding approaches, where farm grants or other financial assistance would be dependent upon participation in a soil conservation program on the farm, will be investigated.

3. **CONDUCT FURTHER RESEARCH.**
To enhance the impact of soil erosion control programs, new technologies and information must be made available to farmers. These include better winter cover crops, suitable late fall crops for growth after potato production, more valuable crops to be grown in the potato rotation and better economic information regarding the on-farm and off-farm impacts of soil erosion.

4. **REDUCE IMPACT OF HIGHWAY CONSTRUCTION.**
In relation to the control and reduction of soil erosion from Island highways and highway construction and maintenance activities, the Department of the Environment will promote a more proactive approach toward the protection of surface waters from sedimentation. For highway construction and other property development activities, proponents will be required to prepare and implement soil erosion control plans. More emphasis must be placed on the timing of construction activities to recognize the need for the establishment of a vegetative cover to protect the soil during the fall and winter months. The use and maintenance of silt traps in the ditches of existing clay roads will be promoted where slopes lead to serious erosion.

5. **REQUIRE CONSTRUCTION SITE EROSION CONTROL PLANS.**
Through the Watercourse Alteration legislation or the Environmental Impact Assessment process, government and private sector developments should not be allowed to proceed to construction unless approved erosion control plans are in place.

SUSTAINING WATER RESOURCES

GOAL: TO MAINTAIN AND IMPROVE WATER RESOURCES

BACKGROUND

Mother nature was extremely generous in her allotment of water resources to Prince Edward Island. We enjoy access to vast reserves of excellent quality groundwater that is available at shallow depths beneath the surface of the land. Groundwater supplies virtually all the domestic, municipal and industrial needs of the Island. Groundwater also accounts for nearly 70 percent of the annual flow observed in the approximately 4000 kilometers of freshwater streams across the province. Being an island province surrounded by saltwater, we are endowed with many thousands of hectares of productive coastal estuaries, those areas at the head of tide where freshwater meets the sea.

The importance of all aspects of our water resource base to the unique character and the socio-economic fabric of Prince Edward Island cannot be over-emphasized. Not only is it essential to preserve our quality of life, but our principal industries - agriculture, tourism, fisheries, forestry and aquaculture - depend heavily on a variety of water-based resources. A key element in sustaining economic growth is the protection and maintenance of our water supplies.

In 1987 Environment Canada and the province signed what was to become a five year, $1.4 million agreement on Water and the Economy. Through programs and projects with this Agreement, technical assessments of the status of our water resources - groundwater, inland surface waters, and estuaries • were carried out, particularly in relation to the economic opportunities provided by improved water resource management and the need for increased resource protection. This Agreement provided an excellent base of information upon which to make future water resource management decisions.

Because Prince Edward Island is only moderately urbanized and is not heavily industrialized, we do not suffer from the major pollution problems of other parts of the country. We are faced with a variety of problems that could, if left unchecked, seriously threaten our valuable water resources. Some serious water quality issues have proven to be inherent in the present mix of land use activities coupled with the geological characteristics of the Island land mass.

Groundwater

The highly fractured sandstone and claystone bedrock common to the Island is overlain by a thin layer of glacial till. This overburden is often very porous in nature, and while this is ideal in terms of groundwater recharge by precipitation, it does render the bedrock aquifer extremely vulnerable to contamination.

While groundwater consumption on the Island amounts to less than 2% of the annual recharge, centralized development has led to a concentration in demand for water. In the Winter River basin groundwater extraction represents nearly 50% of the annual recharge. Withdrawal rates beyond this level can have a significant impact on local stream flows as well as increase the potential for interference with water levels in local wells. In certain coastal locations, high rates of withdrawal can increase the risk of salt water intrusion. Ironically, while saltwater intrusion has long been recognized as a concern, there is now a trend toward using groundwater sources of saltwater for aquaculture operations.

Increasing demand for water in the more developed area highlights the need for comprehensive long-range planning, not only in terms of supply, but also in terms of protecting water quality. Land use generally, and in particular agricultural activities and accidental spills of contaminants, can have a profound effect on water quality. The need for careful land use planning around any water supply source is critical.

One of the most serious threats to groundwater continues to be that related to the storage and transportation of petroleum products. Underground storage of petroleum products has been closely regulated for the past few years. Nearly 1,400 of 1,900 registered tanks have now been replaced or upgraded to new strict standards. Of the 213 tanks removed in 1991, 62 were determined to be leaking. It is expected that the vast majority of older tanks will be removed and the contaminated sites will be undergoing remediation by 1994.

Another important threat of petroleum contamination is related to above-ground home heating fuel storage tanks. A survey of three communities carried out in 1991 indicated that the large majority of outside tanks were improperly installed and were considered to represent a significant potential for groundwater contamination.

The issue of urban groundwater degradation has been in the forefront for the past number of yeas. Until recently, urban sprawl in areas adjacent to major centres has not given groundwater the protection it requires. Many of the housing developments that grew through the sixties, seventies and early eighties used on-site servicing for both sewer and water. Lots were generally small and no consideration was given to the suitability of soil for sewage disposal. Although the installation of domestic sewage systems has been regulated, maintenance of those systems has not been required. Consequently, serious bacterial and frequently chemical, contamination in groundwater has resulted in many areas. The proper abandonment of unused or contaminated drilled or hand dug wells is an important concern.

In new developments, more emphasis is being placed on central servicing for water or sewer or both. Central servicing has advantages other than protection of groundwater, it also allows for more efficient use of land (smaller lot sizes) and provides a better opportunity to protect municipal water supply source wells. More effective regional planning for sewer and water services is essential.

Research has confirmed that land use practices other than urban development can have a significant impact on groundwater quality. Leaching of nitrates from natural and artificial fertilizers is a major concern to groundwater quality. Also, the leaching of road salt used during the winter months has the potential to degrade ground water quality.

Another factor that reminds us of our inherent conflicts in resource use is the storage and handling of farm wastes, particularly, livestock manures. Groundwater supplies have been seriously affected as a result of inappropriate or improper manure storage facilities and disposal practices.

Surface Water

Streams and estuaries are a vital component of our natural environment, providing food, livelihood and enjoyment for the people of Prince Edward Island. It is reasonable to say that all surface waters on the Island are impacted by human activities of one sort or another and have the potential to become seriously degraded if immediate and decisive action is not undertaken. The principal areas of concern are related to siltation and sediment loading, bacterial contamination, nutrient enrichment and resource use conflicts.

Excess silt and sediment affect both stream habitat and water quality. Soil eroded from farm land, highway construction and maintenance, clearing of forest land and urban development are among the principal contributors. The consequence of excessive siltation is loss of valuable fish habitat, loss of recreational opportunities and loss of the natural biological community.

Bacterial contamination of rivers and estuaries is a serious problem in this province. There are 85 areas, covering thousands of hectares of productive estuarine waters, that are currently closed to the direct harvest of

shellfish because of bacterial contamination. Sources of contamination include domestic and industrial wastewater, landwash from agricultural land, urban run-off and wildlife.

Excessive nutrient enrichment of surface waters, particularly in estuaries, can result in disruption of the natural biological communities within those systems. The most common symptom is the prolific growth of aquatic vegetation that can lead to dissolved oxygen deficiency, stagnation and the production of obnoxious odours. Sources of nutrients include domestic and industrial wastewater, agricultural landwash and enriched groundwater. The occurrence of events resulting from over-enrichment in Island surface waters is becoming more prevalent.

Resource use conflicts in the context of surface water are not specifically a water quality problem but they can affect the management of that water since some activities preclude or impact upon other uses. For example, conflicts may arise between aquaculture and recreation, waterfowl production and fish migration, or tourist developments and natural area preservation. Indeed, the challenge of managing resource use involves a balance between the needs of different users and protecting the environment from damage.

Physical alteration of watercourses and associated riparian zones are frequently a necessary component of social and economic development. In excess of 400 watercourse alterations were approved in Prince Edward Island in 1991. These alterations took the form of stream crossings, stream diversions, impoundments, water withdrawals and dredging.

Environmental Emergency Response

The Department of the Environment established a group responsible for environmental emergency response. The Environmental Emergency Response Team (EERT) was formed to provide continuous, 24 hour-a-day response to environmental emergencies in Prince Edward Island. The demand for the services of the team has increased significantly. This has been due to a growing awareness and concern among the general public regarding environmental issues. Originally set up as an oil spill response program, the team now responds to many other environmental emergencies.

PRINCIPLES

Some general principles will govern the ways we choose to sustain our water resources:

1. The responsibility for water resources management must be shared by all Islanders through their participation and stewardship.
2. Water resources of Prince Edward Island are a renewable natural treasure that must be protected and managed effectively to provide economic and environmental benefits.
3. The costs associated with remediation of pollution or destruction of our water resources must be borne by those responsible.
4. Effective and sustainable management of the resource must be based on water use objectives and standards, and be integrated with water and land use management.
5. The water resources of the province, including the marine waters five kilometers offshore, are the property of the crown in the right of the province.
6. Education, information dissemination and public involvement are critical components of effective water resource management.

MEASURING OUR PROGRESS

Measurable changes in the natural quality and quantity of groundwater and surface water will be determined by short-term and long-term monitoring programs. With the view of optimizing monitoring efforts, the federal and provincial Departments of the Environment

recently completed a comprehensive Island wide review of information needs. In accordance with the conclusions of that review, a long-term water quality agreement has been signed between the two levels of government to monitor water quality in some 45 ground, surface and estuarine locations, situated in ten different watersheds throughout the province. The ongoing water quantity agreement between the two departments will also be amended to coincide with the network review.

Information obtained from numerous small scale, local monitoring programs (ie. schools, institutions, problem investigations) will be useful in assessing water quality changes.

It is important to maintain natural, ambient water quality. In areas where contamination has occurred or ongoing anthropogenic influences are known to have an impact, efforts will be made to remediate or remove those sources. The Department will focus on ways and means of reducing the number of incidents of contamination.

Emphasis will be directed toward the maintenance and improvement of ground and surface water quality in order to comply with provincially and nationally recognized standards (Guidelines for Canadian Drinking Water Quality). This will minimize the limitations on use of the resource and will reduce the frequency and impact of resource use conflicts.

The degree of public satisfaction and the level of public involvement are vital components of any program designed to protect and enhance water resources.

STRATEGIES & FUTURE DIRECTIONS

Water Resource Management

1. **REDUCE AGRICULTURAL IMPACTS ON WATER.**
   Programs to improve manure storage and handling will be developed. Minimum standards for manure storage systems will be developed by the Department of the Environment in cooperation with the Department of Agriculture and the farming community. Farmers will be encouraged to follow a Code of Good Practice for Manure Management in order to reduce nitrate and bacterial contamination of groundwater and surface water.

   High nitrate levels have been observed in row crop farming areas. Options for reducing the impact of nitrate fertilizers on groundwater will be developed. Further investigation is needed to determine the impact of groundwater enriched with fertilizers on eutrophication of streams.

   Farmers will be encouraged to fence livestock out of streams. Alternatives to in-stream livestock watering will be developed and demonstrated.

2. **PREVENT PETROLEUM CONTAMINATION OF GROUNDWATER.**
   Petroleum leaks and spills continue to be the most serious source of groundwater contamination in the province. Options for regulating above ground domestic fuel tanks will be considered. Guidelines for soil and groundwater remediation for petroleum contaminated sites will be developed.

3. **DEVELOP SAFE DRINKING WATER REGULATIONS.**
   Regulations should be developed under the Environmental Protection Act to ensure drinking water provided by public and municipal water systems meets strict quality standards and is monitored on a regular basis. Well head protection areas are zones of land in the vicinity of public water supply wells where land use activities are controlled Under these regulations, well head protection areas would be established by the utility operating the water supply

system, in order to ensure the quality of the groundwater is protected.

4. **ENCOURAGE COOPERATIVE WATERSHED IMPROVEMENT.**
An ecosystem approach will be used to focus attention on opportunities for watershed improvement while ensuring that all resource users participate in developing management strategies. The Department of the Environment will coordinate the efforts of government, community groups and landowners to develop consensus and to achieve common goals.

It is important to maintain a buffer zone between wetlands or streams and industrial, commercial, residential or farming activities. Appropriate separation distances will be developed. Landowners will be encouraged to establish and maintain green belts and buffer zones.

The cumulative effect of domestic and industrial wastewater discharge must be considered.

5. **REDUCE THE IMPACT OF WATERCOURSE ALTERATIONS.**
Watercourse alteration and construction guidelines must be provided to proponents of alterations to ensure awareness of appropriate methodologies. With most alteration proposals, the question is not "if" the project can be done, but "how" it should be carried out.

Where extensive soil destabilization will occur as a result of a proposed alteration, erosion control plans will be required prior to construction.

Further research is required to evaluate the impact of artificial impoundments such as dams, ponds and artificial wetlands, on the water quality, temperatures, enrichment, fish habitat and other ecological components.

6. **PROMOTE WATER RESEARCH IN PRINCE EDWARD ISLAND.**
Prince Edward Island's total dependence on groundwater, combined with its leading role nationally in the area of groundwater management suggests that this is an ideal location to develop a strong research program in the area of groundwater research. As well, national and international focus on coastal marine ecosystems, land use impacts and aquaculture and development provide another very appropriate research and development opportunity for our province. The provincial Department of the Environment will work with other provincial agencies, federal counterparts, and the private sector to further evaluate opportunities in these areas.

7. **CONDUCT WATER RESOURCE MONITORING.**
The recently developed Water Resource Monitoring Network proposal will provide an integrated database of current and historical water quality and quantity information using an "index watershed" approach.

Water and Sewer Servicing

1. **IMPROVE WATER AND SEWER PLANNING FOR NEW DEVELOPMENT.**
Many recent groundwater contamination problems are associated with inadequate planning of new subdivisions or rural housing developments. Specific criteria must be developed to determine servicing requirements for on-site or central systems. All approved municipal or community plans should include a water and sewer servicing plan. Criteria for determining suitable lot sizing and regulations to improve design and installation of septic systems will be developed for areas where on-site servicing is appropriate. These criteria

will be applied throughout the province.

2. **INVESTIGATE OPTIONS FOR WATER AND WASTEWATER SYSTEM FUNDING.**
For several years, the province has been providing funds to communities with identified water quality or wastewater problems through the Environmental Servicing Assistance Program (ESAP). There are no federal programs in place. With the very large over-subscription to the ESAP program each year, it is appropriate to look at alternate ways to enhance municipalities' ability to provide water and wastewater services to their residents. These might include innovative borrowing options, privatization, demand management, alternate pricing structures and alternative ESAP cost-sharing arrangements.

3. **PROMOTE WATER CONSERVATION PRACTICES.**
Information and advice on water conservation options for businesses, industries and individuals should be provided to produce effective long-term savings in infrastructure and operational costs for both water supply and wastewater systems.

Coastal Resources

1. **PROTECT SENSITIVE COASTAL FEATURES.**
Through participation in the provincial Land Use Coordinating Committee, the Department of the Environment will continue to assist in the development of clear policy and legislation related to land use on or adjacent to sensitive coastal features such as beaches, dunes or wetlands.

2. **INCREASE PUBLIC AWARENESS OF COASTAL RESOURCES.**
Information must be available to help Islanders understand issues such as shore zone sand removal, sand dune protection and shoreline erosion control.

GOAL: REDUCE SOLID WASTE

BACKGROUND

Garbage is something we all produce. Our waste is becoming more and more difficult to manage and dispose properly. It is estimated that on average, each Canadian produces 1.7 kg (approximately 4 pounds) of garbage daily. Our country is one of the highest per capita waste-generating countries in the world.

There are 45,000 households on Prince Edward Island and combined with the commercial, institutional and industrial sectors, we produce about 300 tonnes of refuse daily. Prince Edward Island is the most densely populated province in the country and this creates special problems in finding places to put the garbage.

The Waste Reduction Program, which was introduced in 1990, promotes the 4R's of waste management in the following priority:

Reduce - reducing the amount of waste we generate.

Reuse - using an item repeatedly instead of discarding it.

Recover - recovering the energy released by burning garbage.

Recycle - using the materials to create new products.

Each of these elements is critical to waste management in Prince Edward Island.

MANAGEMENT OPTIONS

Currently, municipal solid waste is managed at a network of sites. Regional Sanitary Landfills are located in each county and these receive refuse from the major population centers. The Queens County Landfill operates primarily as a bulk landfill site, receiving ash from the Energy from Waste Plant, demolition debris and large non-combustible items. It will only accept household waste during shut down or overflow periods at the Energy From Waste plant.

The Energy From Waste plant in Parkdale is capable of incinerating 99 tonnes of refuse daily. This represents about one-third of the garbage in the province. The energy recovered is used to heat and cool the Queen Elizabeth Hospital. Approximately one million gallons of fuel oil are displaced annually.

There are nine container sites in the province. Patrons place their garbage in dumpsters. The refuse is transported in the bulk containers to one of the regional landfill sites or to the Energy From Waste plant.

There are thirty community disposal sites which are typically maintained by a local community council or by a dump committee. Several of these sites promote open burning of garbage to reduce the volume of waste. This practice is unacceptable and other options must be explored.

SOLID WASTE MANAGEMENT PRIORITIES

Reducing the volume of waste is seen as the best solution to the disposal problem. Consumers need to be more aware of environment-friendly purchase habits and products which result in lower waste volumes. Government has initiated programs to reduce waste volumes such as the requirement for refillable soft drink and beer containers. About 5,000 vehicles become derelict every year and contribute to the waste management problem.

Litter. The problem of litter has been an issue since the mid- 1970's. At that time, a major anti-litter campaign was initiated to try to resolve the problem. The refillable beverage container legislation was one of the products of this campaign. The problem of littering may be broken into two categories - roadside litter and illicit dumping of garbage.

Previous studies show that litter has been a problem for over 15 years and has probably not increased in magnitude since the introduction of the tippage fee program.

Hazardous Waste. Prince Edward Island does not have a major industrial sector and thus does not produce large volumes of hazardous

waste. Hazardous waste inventories have been conducted in the past and the main components of hazardous waste in Prince Edward Island are:

1) household hazardous waste
2) pesticides
3) petro-chemicals including used motor oil
4) laboratory and institutional chemicals
5) industrial/commercial waste

There is no hazardous waste disposal site in Prince Edward Island or in the Maritimes. The wastes must be shipped to disposal sites in Quebec or Ontario. Since most businesses or individuals generate only a small quantity of hazardous waste, the costs for transportation and disposal are very high.

In recent years, there have been two major initiatives to encourage people to properly dispose of hazardous waste, a household hazardous waste collection day in May, 1988 and a farm chemicals collection day in November, 1990.

The Department of the Environment provides disposal advice for hazardous waste generators. Services include recommending hazardous waste disposal companies, facilitating waste exchanges, coordinating collection and disposal of waste and tracking waste movement under the Transportation of Dangerous Goods Act.

Energy From Waste Plant. The Energy From Waste plant recovers the energy from burning garbage and reduces the volume of waste. Approximately 30 tonnes of ash and bulk debris are hauled daily from this plant to the bulk landfill site in Sleepy Hollow. There is currently little or no sorting of non-combustible materials, compostable materials or recyclables from the waste before it enters the plant. Opportunities to improve the efficiency of the plant and the quality of the emissions by managing the waste stream entering the plant will be investigated. The air emissions from the plant were measured by Environment Canada and a report on the emissions was released in 1985. Based on current air quality guidelines, the plant exceeds stack emission levels for dioxin, hydrogen chloride, lead and other heavy metals. The plant does not produce emissions which exceed design expectations, and when it was built it met the required air quality criteria.

PRINCIPLES

The basic principles which govern our efforts to achieve the goal of waste reduction are:

1. Reduce. Reuse. Recover. Recycle. All 4R's are part of Prince Edward Island's waste management program. Source reduction is the most effective way to resolve the problem.
2. Polluter Pays. The person producing pollution (or waste) should be held directly accountable for managing that pollution. Individuals should be aware of the full cost of waste disposal.
3. Owner is Responsible. Each person must be responsible for the materials they purchase which will eventually require disposal. The waste management crisis can be alleviated through better purchase habits and by the waste generator becoming aware of the solutions and making informed decisions.
4. Our motto should be *"WASTE NOT, WANT NOT"*.

MEASURING OUR PROGRESS

The amount of garbage taken to the three regional landfill sites and the Energy From Waste Plant has been weighed since 1991. The progress toward meeting the goal can be easily measured by comparing the changing weight of the garbage.

Annual objectives for waste reduction have been identified as we strive to achieve a 50% reduction by the turn of the century.

A Statistics Canada survey in 1990 showed that only 11.6% of Islanders take their own bag

to the supermarket and 33.6% make an effort to buy products made of recycled paper. The success of the Waste Reduction Program depends to a large degree on the commitment of individuals to get involved in waste reduction activities. Surveys such as those conducted by Statistics Canada can tell whether individual participation is increasing.

The number of communities and organizations participating in reduction efforts will directly affect the success of the program. The number of communities involved and committed to waste reduction and recycling efforts should increase. There are currently 88 official communities; only ten have undertaken waste reduction initiatives.

A larger number of companies and businesses actively involved in waste reduction efforts will provide more opportunities for the public to participate in reduction and recycling programs. There are currently about twelve companies, including bottle exchanges, whose business is mainly focused on recycling or reduction activities. More companies are expected to enter this expanding business sector.

Reduction of packaging is a key component of waste reduction. Packaging accounts for about thirty percent of total waste and is the largest single component of municipal waste. Maintaining a database of the types of packaging and regularly measuring the volumes of packaging on a national basis will help to measure success. The Department of the Environment is proposing to meet the national objectives for an absolute reduction of packaging; 20% reduction by 1992, 35% reduction by 1996 and 50% reduction by 2000.

A high rate of public satisfaction will be an indication that the program is working effectively.

STRATEGIES AND FUTURE DIRECTIONS

1. IMPLEMENT ADDITIONAL STAGES OF THE WASTE REDUCTION PROGRAM.

This program includes volume reduction, infrastructure, education, public consultation, site improvements, legislation, evaluation, financial and special projects.

Elements of this strategy are described below:

a. By the year 2000, packaging waste should be reduced to 50% of the amount used in 1988. Prince Edward Island is supporting the National Packaging Protocol in working to achieve this objective.

   The Department of the Environment will consider initiatives such as expanding the refillable/returnable requirements to milk and fruit juice, encouraging the sale of bulk goods and promoting the use of less packaging.

b. The Department of the Environment will work to improve present disposal sites by controlling access and maintaining supervision during receiving hours. Recycling depots should be available at all provincially operated container sites and at community disposal sites. It is important to reduce leachate production at regional landfill sites by improving surface water drainage and installing impermeable caps to reduce infiltration. Open burning of garbage at disposal sites will be prohibited. Community disposal sites which do not have enough capacity should be converted to container sites with recycling depots.

c. Source separation will be encouraged to remove items from the waste stream, for example, tires, paper, plastic, compostable materials, glass and batteries.

d. Islanders will be encouraged to be conservers, not consumers. Wise choices protect the environment and create markets for recycled materials. Durable and serviceable products will be encouraged.

e. The Department of the Environment will provide information to make Islanders aware of waste reduction opportunities. For example, a directory will be developed to outline where items made from recycled materials can be purchased. Workshops and conferences will inform people of the many opportunities for participation. A logo and slogan will be developed to increase the visibility of the Waste Reduction Program.

2. **MANAGE SPECIFIC WASTES.**
Used lubricating oil is becoming a concern. It is important to ensure that used oil is collected and that acceptable uses are identified. Options for remediating petroleum contaminated soil will be demonstrated and evaluated. The Department of the Environment will work with waste generators to develop a Code of Practice for managing hazardous wastes. Product stewardship will be encouraged at every opportunity.

3. **REDUCE LITTERING AND ILLICIT DUMPING.**
The Department of the Environment will focus attention on the problem of littering. A Task Force on Litter may be established to develop and implement strategies for reducing litter. There will be increased enforcement of the Litter Control Regulations.

4. **PROVIDE FINANCIAL INCENTIVES.**
It is important to develop options for ensuring that waste generators pay for disposal in proportion to the amount of garbage they generate. This could include a tag system for household garbage or higher rates for larger quantities. A variable fee structure for tippage fees may be an option.

The Department of the Environment will provide seed money for new and innovative waste reduction projects.

5. **IMPROVE THE EFFICIENCY AND EMISSION QUALITY OF THE ENERGY FROM WASTE PLANT.**
The Department of the Environment will encourage municipalities and homeowners to remove non-burnable and compostable materials such as glass, metal, leaves, grass clippings and food waste from the waste stream entering the plant. A program to remove wet and dry cell batteries from the waste stream will be developed in order to reduce lead and cadmium emissions. It is important to ensure that the Energy From Waste plant is operating at maximum efficiency and that all excess heat is recovered and used. A comprehensive evaluation of emissions will be conducted.

CONSERVING OUR ECOSYSTEM

GOAL: MAINTAIN AND IMPROVE ECOLOGICAL DIVERSITY

BACKGROUND

A habitat is the place where a plant or animal usually lives. An ecosystem is a much more complex concept, incorporating the interactions between the physical and biological environment.

Ecological diversity implies a diversity of habitats but it also requires productive habitats.

The loss of the rain forests in such places as the Amazon or Southeast Asia means the loss of ecological diversity on a large scale. The diversity of wildlife in such habitats as a wooded riparian zone along a stream or the natural succession of cut-over hardwood stands is an example of ecological diversity on a local scale.

Without habitat, there will be no wildlife. Complex and diverse habitats support a wider range of species. Ecological diversity implies a great variety of habitats, of sufficient quantity and quality, and of sufficient proximity to one another to support the greatest variety of wildlife. Wildlife in its broadest sense includes all wild species of plant and animals and is not restricted to the species traditionally hunted, trapped or harvested.

Over the course of the Island's history, changes in wildlife species and numbers have occurred. The effect of man's influence on habitat has contributed to these changes, both in positive and negative terms. With colonization and the shift in the late 1800's from a forested landscape to one dominated by agriculture, the diversity of habitat and species associated with these habitats changed. Some species were lost with changes to the forest canopy. Others, such as the lynx, could not tolerate a close association with man. The beaver and black bear were extirpated. In addition to changes that favored species associated with diverse landscapes, wildlife species were sometimes intentionally introduced. The starling, house sparrow, Hungarian partridge, ring-necked pheasant, raccoon, and striped skunk represent examples of non-native species that now contribute to species diversity. The beaver has been successfully re-established.

Natural range extension of species has also contributed to our ecological diversity. The natural expansion of waterfowl species such as the pintail, gadwall and mallard, ducks traditionally associated with Western Canada, are examples. More recently, coyotes migrated to the Island over natural ice bridges and have been successful in populating much of the province within a 10 year period. Plant diversity has increased greatly with the introduction of literally hundreds of species, some of which are common weeds.

Changing economic conditions, government incentives and programs can also influence ecological diversity. Within this century, with the abandonment of farms and the succession of fields to forests, we are witness to further variation in ecological diversity. Fields which once supported agriculture quickly developed into monocultures of white spruce.

Government incentives in the 1960's promoted the enlargement of fields for efficient agriculture through the removal of hedgerows. The mosaic of field, hedgerow and woodland was quickly transformed, and resulted in a loss of ecological diversity.

Forests are an integral part of the Island's landscape. The age class, stand structure, and species covertype directly affect the species of wildlife using the forests. Forest harvesting and the implementation of silvicultural techniques alter these factors and can thus alter the species of wildlife utilizing or existing in a particular forest stand at any given time. In a similar way, management of wetlands, streams, and fields also alters the wildlife species in these habitats.

Over the past ten years the forest has become more diverse due to the natural succession of mature softwood to mixed wood stands of hardwood and softwood. For example, the latest inventory indicates that the amount of pure softwood has decreased by 14% while the mixed wood stands have increased by 13%.

The Forestry Branch has adapted its management treatments to create more diversity within

treated stands. Specific efforts have included favoring 10% to 20% alternate species in forest plantations, retention of snag trees and cover patches in clearcuts, mixing softwood species in plantations and growing more species for plantations - seven softwood species are now being produced as well as a small amount of hardwood.

Hungarian partridge and ring-necked pheasant populations have declined within the province, both in distribution and numbers. The use of pesticides has had an effect on some wildlife species. The history of DDT and its long lasting effects on certain living organisms has been well documented and reported. New generation pesticides are less persistent than previous products but still remain lethal to many organisms.

Man's influence on water courses with the establishment of dams for milling and recreation purposes has contributed to changes in ecological diversity in both positive and negative terms. Mill ponds created new habitats for wetland dependent wildlife, but dams often served as barriers to migratory fish species.

More recently, efforts by Government in cooperation with Ducks Unlimited have been directed at maintaining and managing impoundments and their associated wetlands, with the emphasis on those providing diversity of habitats in support of fish and other wildlife. Implicit in this effort has been the construction of drawdown facilities and fishways to provide greater flexibility in management and to permit upstream migration of fish. These initiatives support the protection and enhancement of wetland habitats to support the greatest variety of wildlife.

The Montague Watershed Project was undertaken as an experimental project to demonstrate a new approach to integrated management. The approach has proven successful and local and non-government groups are interested in working on other watersheds. Further interest in watershed improvement will be supported through the Atlantic Coastal Action Plan, a Green Plan initiative, in the Bedeque Bay and Cardigan Bay areas.

The variety of bird species breeding within Prince Edward Island is largely dependent on influences outside our direct control. Many species are migratory, frequenting the province from spring to fall and over-wintering in the southern United States or Central and South America. The need to protect the wintering habitat for these birds is now being recognized through new initiatives, including the Western Hemisphere Shorebird Reserve Network (WHSRN) and the Neotrophical Wetlands Program (NWP).

In order to protect representative habitat features, Prince Edward Island adopted a Significant Environmental Areas Plan in 1991. The plan identifies eight habitat types, represented by sites of both biological and educational significance. A total of 94 sites have been identified for protection under the Natural Areas Protection Act. Sites include both crown land and private properties. Efforts to designate crown lands under the Act are proceeding well. Much work must be done to obtain agreement from private landowners to permit designation of their properties.

PRINCIPLES

Some basic principles support the realization of ecological diversity including:

1. The way in which land, water and air are used strongly affects the quality and quantity of habitat upon which wildlife depends.
2. Wildlife is an integral part of the environment in which we live, and a key indicator of the health of that environment.
3. Basic and applied scientific research are essential to our understanding of ecosystems and their wildlife components.
4. Wildlife has intrinsic social, cultural and economic values.
5. Effective conservation of wildlife relies upon a well-informed and involved public.
6. We all have stewardship responsibility for wildlife, even though governments

are accountable for its management.

7. Finding the right balance of uses requires dialogue and co-operation among everyone managing natural resources.

MEASURING OUR PROGRESS

The development of Geographic Information Systems (G.I.S.) and wildlife population response models specific for Prince Edward Island conditions would improve the ability of resource managers to predict the ecological implications of resource management decisions. This could have broad implications in the environmental assessment field as well as improving the ability to manage landscapes in a truly sustainable manner.

Programs such as the Eastern Habitat Joint Venture are directed at securing and enhancing wetland habitat for the benefit of waterfowl and other wetland dependent wildlife. Protected wetlands and benefits to waterfowl and other wildlife species constitute part of the assessment of the program's success. Our ability to influence both landowners and government officials in protecting and enhancing wetlands will also be measured.

The interest and involvement of non-government groups in active habitat management, in particular, the restoration of fish habitat, is increasing. The Department's performance will be reflected in the number of groups involved and the variety of initiatives supported.

While it is impossible to monitor every wildlife species, it is possible to select indicator species for various habitats and monitor their population fluctuations. Covertype analysis using G.I.S. can be used to monitor major shifts in habitat composition. The number of fish moving through selected fishways, the number and variety of birds breeding in the province, the number and variety of waterfowl reproducing and overwintering in the province, the number and variety of colonial nesting bird colonies and their breeding success, and the number of beaver colonies within a watershed are examples of information that is being collected.

Individuals involved in harvesting wildlife usually require a license for this privilege, while information on the participation of others can be obtained through questionnaires and surveys. In addition to gauging the level of participation, questionnaires and surveys provide valuable information relating to the expenditures individuals make in pursuing their interest in wildlife.

STRATEGIES AND FUTURE DIRECTIONS

The *Conservation Strategy* made a number of recommendations which supported ecological diversity. Some recommendations have been successfully implemented, while others require on-going effort.

1. **DEVELOP A PROVINCIAL WILDLIFE POLICY.**

   At present, there is no comprehensive policy that provides for the protection and management of wildlife within Prince Edward Island. As a first step, the Department of the Environment will develop a Wildlife Policy that will broaden the definition of wildlife and that will include provisions to strengthen the conservation and enhancement of wildlife and wildlife habitats. It is important to develop a wildlife monitoring program in cooperation with other resource management departments. A monitoring program would identify indicator species, determine desirable wildlife population levels and investigate the impacts of different resource management practices on wildlife.

   Initially, protection of colonial nesting bird habitats and management instruments to provide habitat protection on private land will be given priority.

2. **INCREASE AND IMPROVE HABITAT.**

   Ecological diversity must be promoted by Government in delivering resource management programs. Since 90% of the land is privately owned, it will also be important to encourage private landowners to

participate in preventing habitat degradation.

The Department of the Environment will increase efforts to work with private landowners, non-government organizations and other government departments to promote the establishment and management of green belts and hedgerows. The Department will also work to promote alternate land use practices to protect watercourses and wetlands from livestock damage and siltation.

The Department will manage its assigned crown woodlands to promote biological diversity and multiple uses. In addition, it will continue to work closely with the Forestry Branch to promote new management approaches to encourage ecological diversity on both crown and private lands. The Department will encourage and assist, where possible, the diversification of tree species grown for reforestation purposes.

3. **ENCOURAGE WATERSHED IMPROVEMENT PROJECTS.**
The Department of the Environment will promote and assist the development and implementation of integrated enhancement initiatives on a watershed basis, taking into consideration the various users and interests. Land use and soil conservation must be considered in management initiatives designed to achieve long-term protection and improvements in the watershed. The Department of the Environment is actively involved in providing support and direction to this integrated management approach.

4. **DEVELOP AND IMPLEMENT A SALMONID ENHANCEMENT PROGRAM.**
With the recognized need for more emphasis on fish habitat restoration and stock enhancement, the Department of the Environment will pursue suitable funding support from the federal government to address these needs and explore new angling opportunities.

5. **IMPLEMENT THE SIGNIFICANT ENVIRONMENTAL AREAS PLAN.**
Protection of the sites identified in the Significant Environmental Areas Plan will be accomplished through designation of crown lands, and with the support of private landowners. The designations will carry management plans which protect the property in perpetuity. Acquisition, which will be necessary to protect some of the remaining sites, will be accomplished through cooperative arrangements between government and non-government agencies. The Natural Areas Protection Act will serve as the vehicle for habitat protection.

6. **PUBLIC AWARENESS AND INVOLVEMENT.**
The public is becoming increasingly interested in playing a role in resource management. The Department of the Environment will encourage and support this interest as fiscal resources permit. It is important to recognize and encourage partnerships in order to achieve common goals and objectives.

The Department of the Environment will continue to provide information to the public through special events such as Wildlife Week and Environment Week and published brochures.

The public will be encouraged to support the protection of wildlife and habitat by reporting violations to the Department of the Environment.

The Department of the Environment will encourage public understanding of ecological diversity, through program delivery on crown lands and in partnership with community-based interest groups.

PROTECTING OUR ATMOSPHERE

GOAL: MAINTAIN AND IMPROVE AIR QUALITY

BACKGROUND

The air we breathe is a precious global resource.

The state of our atmosphere is the most obvious indicator that our actions can not be considered in isolation. Prince Edward Island is not isolated from the rest of the world - we live in a global environment. Acid rain, global warming and ozone depletion have shown the potential for regional or global impacts.

The nature and scale of environmental air quality issues has changed greatly over the past 30 years. Initially, concern was focused on the effects of emissions from air pollution sources on the local environment. Lately, concern and focus has shifted to regional scale environmental effects, as we recognized that multiple point sources can alter the air quality of large areas.

Human activities have become a major factor affecting the Earth's atmosphere and may significantly alter its composition. This has the potential to damage natural ecosystems and cause human health problems.

Much less is known about the effects of air pollutants on the environment than about their effects on human health. What is well understood now is that the air is the primary route of entry of many pollutants into the environment.

As our environmental awareness of air quality issues has grown, the complexity and magnitude of these problems has also increased. In air quality, as in other environmental concerns, we need to think globally and act locally. As a province, we must be aware of the contribution of our industries and activities to global air quality. As individuals we must raise our awareness of how our actions can affect air quality.

Increasingly, our decisions will be influenced by international commitments and obligations designed to protect the planet's ecological systems.

Climate Change

Global warming. Greenhouse effect. Climate change. These words all refer to a complex phenomenon which is expected to cause unprecedented changes in our weather pattern over the next 50 years. Surface air temperatures appear to be rising because trace gases such as carbon dioxide and methane are building up in the atmosphere, letting in solar radiation quite freely but slowing the return flow of energy to space.

If the predictions of global warming are fulfilled, Canada's climate faces a significant transformation in the next few decades with widespread impact across the country. Our Island can and will be affected by global atmospheric and climate change.

The potential impacts of global warming include; changes in precipitation and evaporation patterns; changes in groundwater availability; salt water intrusion into freshwater coastal aquifers; sea level rise; and increasing climatic instability resulting in more severe storm and flood events.

A rise in sea level could have drastic consequences for Prince Edward Island transportation networks, fishing, recreation and tourism will obviously be affected. Farming, forestry, electricity generation and health services will be impacted by a warming climate.

Many of the factors leading to atmospheric change are rooted in the combustion of fossil fuels all over the world. Given that we all use energy, we can all take action to safeguard the atmosphere.

Canada must cooperate in international measures to control emissions of greenhouse gases. Prince Edward Island must participate in achieving national reduction targets and in doing our part to reduce our impact on the atmosphere.

Ozone Depletion

Upper atmosphere ozone depletion is caused by the release of man-made CFCs (chlorofluorocarbons) and halons to the atmosphere. The consequences of the thinning of the ozone layer are life-threatening on a global scale. Ozone layer depletion allows increased amounts of ultraviolet radiation to reach the Earth's sur-

face, causing an increased incidence of skin cancer and eye damage, suppression of the body's immune systems, reduced crop yields and increased threats to the aquatic food chains.

Acid Rain

Acid rain has been studied for many years, and compared to climate change it is a relatively simple issue. Sulphur dioxide (SO_2) combines with water vapour in the atmosphere to create a mild sulfuric acid. Sulphur dioxide can travel for miles in weather systems and causes damage many miles away from the source.

Acid rain results in regional ecosystem damage. Agricultural yields and forest growth are impaired; man-made structures are corroded and human health may be adversely affected.

In 1987, Prince Edward Island signed an agreement with the federal government committing the province to a limit of 5,000 tonnes of SO_2 emissions by 1994. Under the Canada/US Air Quality Accord, the Americans are demanding that our commitment be extended until the end of the century. It may be expensive in terms of energy costs for Islanders to honour this commitment.

Transboundary Air Pollutants

Other air pollutants threaten the Earth's atmosphere. Nitrogen oxides (NOx) and volatile organic compounds (VOCs) are precursor air pollutants that react in the presence of sunlight to form ground-level ozone, a major component of urban smog.

Above certain concentrations in the atmosphere, ozone causes adverse effects on human health, vegetation and materials. In summer months, more than half of all Canadians are routinely exposed to ozone concentrations that are known to have adverse effects on health. Crop damage from ozone is substantial in some regions.

Ozone and its precursor pollutants, NOx and VOCs, can be transported for hundreds of miles in the atmosphere. In some regions, ozone, NOx and VOCs imported from the United States are the dominant factor in Canadian air quality problems.

Canada and 24 other nations signed an international protocol in 1988 committing nations to a freeze in NOx emissions at the 1987 level, the application of best available technology economically achievable to new sources and the establishment of further measures to solve NOx-related environmental problems by 1996. Canada is now participating in the negotiation of a VOC protocol.

The Canadian Council of Ministers of the Environment (CCME) requested that a plan be developed to manage NOx and VOCs in Canada. A three-phase plan was developed aimed at consistent attainment of the Canadian maximum acceptable air quality objective. Phase I of the NOx /VOC Management Plan was published in November 1990. It contains both prevention and remedial emission reductions programs which will affect mobile and stationary sources, ranging from automobiles through power plant and refineries to solvent uses such as paints and coatings. Implementation of the Phase I plan is a shared responsibility of federal, provincial and municipal governments.

Other toxic air pollutants are transported thousands of miles. Different pollutants cause different adverse health effects and mixtures of pollutants may in fact cause greater effects than those caused by the individual compounds in the mixture.

Although the air in Canada is much cleaner now than it was 20 or even 10 years ago there is still concern that contaminants in the air may be affecting human health in less obvious ways. Scientists are just starting to study these impacts and interactions.

Local Air Quality

Generally the air quality in Prince Edward Island is very good. Local problems are related to issues such as odour, particulate (dust), smoke and noise. In most cases, the air quality is affected only in the immediate area of an air pollution source and the pollutants are not

emitted continuously. Sources of air pollution include open burning (grass, garbage), asphalt plants, bunker C fuel burners, wood chip burners, incinerators, farms, motor vehicles, industrial plants, paint shops and the Energy From Waste Plant.

The air we breathe is never completely dry or pure. Air always contains water vapour; particles of dust, pollen, soil, fibrous minerals and ash; and other gases such as sulphur dioxide, nitrogen dioxide, ozone and carbon monoxide, all of natural origin.

Human activities contribute air pollutants to the atmosphere. A significant contribution comes from activities directly related to the production and consumption of energy. Industrial production of chemicals and minerals, the manufacture and use of food and consumer products, agricultural and forestry practices, waste treatment and disposal can all lead to air pollution problems.

Because of the number of homes and their distribution across the province, it is inevitable that there will be conflicts related to land use. For example, industrial plants are located in or right beside residential areas and neighbours complain about noise, odour or fumes. Land spreading of manure releases distinctive odours and many complaints arise when prevailing winds carry the smell into residential or recreational areas. One way to minimize the conflict is to provide separation distances or buffer zones around problem sites. Due to the scattered settlement pattern it is very difficult to achieve acceptable separation distances from farms, asphalt plants, industrial parks, fish meal plants or manufacturers.

New Air Quality Regulations are proposed under the Prince Edward Island Environmental Protection Act. They will establish a system of operating permits for sources of air pollutants. This will also allow information about different emissions to be collected.

Good health and a sound environment will remain elusive goals for future generations without clean air.

PRINCIPLES

Some general principles and criteria will govern the ways we choose to achieve this goal:

1. The polluter pays principle: the polluter is responsible for the costs of anticipating and preventing pollution as well as the costs of repairing the damage from pollution.
2. Priority will be assigned to those issues which pose the greatest risk to humans and the environment. Priority setting criteria will include a combination of 'ease of impiementation' and 'significance to Islanders' considerations.
3. The management of air quality must be approached on the basis of a full assessment of direct and indirect environmental, social and economic costs and benefits.
4. Although cost effectiveness is essential, a least-cost strategy alone may not be satisfactory; innovative and flexible approaches are needed.
5. Prince Edward Island must meet national obligations while recognizing provincial priorities.

MEASURING OUR PROGRESS

Prince Edward Island certainly doesn't have as many smokestacks, chimneys or exhaust pipes as other provinces, but we do have the most densely populated province. Clearly, many pressures are placed on the atmosphere by human activity.

Monitoring of air quality is very limited in Prince Edward Island. Generally, we rely on monitoring in other parts of the Atlantic region to describe regional air quality.

The Prince Edward Island Department of the Environment and Environment Canada cooperate in monitoring some air pollutants. Sulphur dioxide, lead and particulate matter have been measured in Charlottetown for almost 20 years.

Provincial and federal governments also

work cooperatively to develop estimates of emissions of air pollutants. A large number of diverse, widespread sources must be considered. In Prince Edward Island, only a few sources have been measured directly by sampling at the stack.

An air quality index is based on the measurement of several specific pollutants and an averaging of the results. Not enough monitoring information is collected to develop an air quality index for Prince Edward Island.

National standards and guidelines are available for some common pollutants, but there is very little scientific information available about air toxics. Much of the existing information reflects a past emphasis on conventional pollutants.

Prince Edward Island must develop and maintain a good inventory of air emissions. This will focus our efforts on major sources of pollutants and show where reduction opportunities exist. It would be very useful to have baseline information about the general air quality in Prince Edward Island at both rural and urban locations.

STRATEGIES AND FUTURE DIRECTION

1. **IMPLEMENT NEW LEGISLATION.** Air Quality Regulations have been proposed. Implementing the regulations will allow the Department of the Environment to gather accurate inventory information about air emissions.

   The regulations will enable government to address local air quality issues by imposing monitoring, operating conditions or emission control requirements on polluters.

2. **HONOUR INTERNATIONAL OBLIGATIONS.** Prince Edward Island will participate in national and international air quality management plans. We must do our part to protect the Earth's atmosphere. Much of this work is coordinated by Environment Canada or the Canadian Council of Ministers of the Environment (CCME). Committees are working on air quality objectives, toxic air pollutants, harmonization of legislation, NOx and VOCs and other technical aspects of air quality management. There are many agreements that are being negotiated now:

   a. Prince Edward Island will participate in developing a National Air Quality Agreement.

   b. Amendments to the Canada-Prince Edward Island Reduction Agreement on Sulphur Dioxide have been proposed.

   c. Prince Edward Island has endorsed the CCME NOx/VOC Management Plan and has taken steps to reduce emissions.

   d. Bi-lateral agreements on specific pollutants such as VOC, CO_2, NOx are being developed.

   e. Canada is a signatory to the Montreal Protocol restricting ozone-depleting substances. Some countries want the time table for controls shortened.

3. **DEVELOP CFC REGULATIONS.** Prince Edward Island has made a commitment to develop regulations related to ozone depleting substances. The first step will be consultation with Island industries using these products.

4. **MONITOR AIR QUALITY.** The Department of the Environment, in cooperation with other agencies, will investigate opportunities for increasing air quality monitoring on Prince Edward Island.

5. **INFORM ISLANDERS.** Atmospheric clean-up begins at home and individuals have an important role in reducing emissions and achieving solutions to air quality problems. For example, more information will be available to help make good environmental choices related to energy conservation and efficiency, and reduced air pollution.

PUBLIC INVOLVEMENT

GOAL: INCREASE PUBLIC INVOLVEMENT IN DEVELOPING AND IMPLEMENTING SOLUTIONS TO ENVIRONMENTAL PROBLEMS.

BACKGROUND

Although by no means a new concept, public involvement has become almost a "buzz phrase" for the 1990s. Never before have we witnessed so many public consultation sessions, open forums, and promotional campaigns designed to create awareness, educate the public and encourage action. It is important to realize that the environment is everyone's responsibility. The Prince Edward Island Department of the Environment recognizes that it must take a lead role in coordinating public involvement.

Although environmental issues can be related to air, land, or water, the common thread running through them all is the need for heightened public awareness and involvement. For the purposes of this strategy and future planning efforts, the following distinctions apply.

Public Awareness. The purpose of a public awareness campaign is simply to inform a target audience that a particular issue, program, or special event exists or will take place.

Public Education. A public education program generally follows up on the public awareness campaign by providing the public with information they can use to build a knowledge base on a particular issue. Simply because people are well-informed about an environmental issue does not mean they will make lifestyle changes to protect the resource in question. For example, most people know it's against the law to litter but we still have a significant littering problem on Prince Edward Island.

Public Involvement. Finally a public involvement campaign directs the target audience to take a particular stance towards an issue and act upon that conviction.

An illustration involving acid rain demonstrates how the three elements can complement one another. A public awareness campaign would seek to familiarize the public with the concept of acid rain as an environmental issue. The campaign may also go so far as to familiarize the public with key terms associated with acid rain such as "sulphur and nitrogen oxides".

The public education program would go into much greater detail and attempt to provide the target audience with an understanding of what causes acid rain, how it can be addressed and so on.

The public involvement effort strives to persuade the target audience that their participation is required if the acid rain problem can be adequately addressed. This campaign would provide very specific information and direction on how the public can get involved. The audience would be encouraged to cut down on unnecessary driving, for example.

While other government departments may be able to successfully meet their goals without a great deal of public involvement, the very nature of the environment portfolio demands a high degree of public participation. Individual and group activities can either conserve or destroy the environment. And conversely, the condition of our surroundings can restrict or expand our range of activities.

The environment of Prince Edward Island is particularly responsive to the actions of individuals, due to many factors that make this province unique. As Canada's smallest province, significant environmental changes, either positive or negative, become immediately apparent. Our population density makes it relatively easy to develop involvement campaigns that successfully reach the majority of Islanders.

Ninety percent of the land in Prince Edward Island is privately owned. The quality of our natural resources hinges primarily on the actions of landowners. Our traditions of stewardship and caring for the land play a vital role in preserving a healthy land base on the

Island. Landowners are often responsible for protecting the quality of our groundwater.

It has been said that the economy of Prince Edward Island revolves around red soil, red lobster and red hair - referring to agriculture, fisheries and tourism. The livelihood of Islanders depends on the quality of the environment. Efforts to achieve sustainable development will depend on the commitment of primary resource users.

Environmental Education on Prince Edward Island

It is important to distinguish between formal and informal environmental education. Formal education refers to a target audience of primary, secondary and post-secondary students - our traditional school system. Informal education refers to a wider audience and the general public, and is not characterized by a particular level of education. In most cases, an informal education campaign directed towards the general public would also encompass those members of the formal education system.

Informal Education

The Prince Edward Island Department of the Environment has assumed the lead role in informal education efforts and encouraging environmental responsibility among Islanders. The Department recognizes the contributions made to this effort by numerous organizations on Prince Edward Island. Although these groups often operate with limited resources, their efforts, combined with those of the Department of the Environment, can be very effective in reaching most Islanders.

The Prince Edward Island Environmental Advisory Council coordinates the Annual Environment Awards which heighten public awareness of environmental initiatives by acknowledging the efforts of environment-conscious businesses, individuals, organizations and educators.

Other examples of public involvement are encouraged through cooperative efforts such as Environment Week. The provincial and federal environment departments assist over one dozen organizations on Prince Edward Island which arrange environment-related events throughout the province. These events are designed to involve individual residents in activities which will lead to a greater understanding of and a closer relationship to our environment.

Another example of a successful cooperative environmental initiative is the Montague Watershed Enhancement Cooperative. This highly successful demonstration project broke new ground with its multi-faceted programs in forest and wildlife management, stream improvement, soil conservation, erosion control and public awareness. It demonstrated the multiple benefits of cooperative management.

The Department of the Environment coordinates the Young Environmentalists Program which educates Island youth about the importance of protecting and enhancing the environment by providing both theoretical instruction and hands-on work experience in their home communities.

The Department of the Environment is very interested in positive examples of public involvement initiatives which are being set across the country. For example, the Alberta Department of the Environment has coordinated an extensive volunteer speakers' bureau which responds to the requests for speakers from schools, community organizations, service clubs, and others.

Formal Education

The Premier's Round Table on Environment and Economy received a report entitled *Aspects of Environmental and Natural Resource Education: a Prince Edward Island Perspective* by David Morgan and Ian MacQuarrie.

Based on this report, the Department of the Environment and the Round Table have entered into consultations with the provincial Department of Education to consider the fu-

ture of environmental education in the Island's school system.

The Department of Education has expressed particular interest in a newly developed initiative of the National Round Table on Environment and the Economy *A Sustainable Development Education Program*. The program, to be implemented over six years, is designed to integrate the concept of sustainable development in the elementary and high school systems. It is proposed that the federal and provincial governments, as well as the private sector, will provide equal funding for the program. An Executive Director is now in place and the next phase involves consultation and research. Educators will write the curriculum material and it is estimated that it will take one year to test and evaluate the materials, and another year to redesign the materials and train the teachers.

PRINCIPLES

Some general principles will govern the ways we choose to achieve the goal of increased public involvement.

1. The Department of the Environment is committed to providing current and accurate information to the public on a wide range of environmental topics.
2. Priority is given to disseminating information essential to the health and well-being of the public and the state of the environment.
3. The Department of the Environment maintains an open-door communications policy whereby the public is encouraged to contact the Department for responses to any environment-related questions and concerns.
4. An informed public is essential to effective participation and discussion of environmental issues.

MEASURING OUR PROGRESS

It can be extremely difficult to measure the effect on the public of a particular campaign or initiative. The inherent nature of awareness, support and involvement make them almost impossible to measure in terms of tangible parameters. There are some commonly used tools designed to provide at least an indication of success or failure when evaluating a public involvement campaign, for example, public opinion polls, recording the number of complaints and inquiries on particular issues, assessing the requests for speakers and the amount of media coverage, measuring attendance at public consultation sessions and conferences, and measuring the response to "clip and remit" ads.

STRATEGIES AND FUTURE DIRECTIONS

It is important that Islanders become more involved in Department of the Environment initiatives specifically, and in more environmentally-friendly lifestyles in general.

1. **INCREASE AWARENESS OF ENVIRONMENTAL ISSUES.**
   The Department of the Environment should include an educational component in all of its programs and initiatives. It is important to pursue more opportunities to provide information to the public through community schools, festivals, appearances at special events, as well as attention-getting initiatives such as parade floats or lobby displays. Special efforts will be made to send appropriate information to community leaders. Convictions and violations of environmental regulations should be published.
2. **COORDINATE SPECIFIC EFFORTS TO TARGET THE FORMAL AND INFORMAL EDUCATION AUDIENCE.**
   The Department of the Environment will assume a lead role in educating the general public regarding current environmental issues and will act as a support agency to the Department of Edu-

cation in reaching the formal education audience. Elements of the environmental education efforts will include establishing a volunteer speaker bureau, expanding and updating the departmental library of resource materials, coordinating the Department's educational campaigns with those of environmental non-government organizations, service clubs, and other government extension activities. The liaison between the Department of the Environment and the Department of Education related to curriculum and professional development will be enhanced.

3. **INCREASE PUBLIC INVOLVEMENT IN INDIVIDUAL, COLLECTIVE AND DEPARTMENT OF THE ENVIRONMENT EFFORTS.**
   Another way of phrasing this strategy is to encourage people to 'think globally, and act locally'. After making people aware of their responsibility, it is often necessary to provide further encouragement and incentives to actually recycle, compost, report litter violations, or conserve energy. Some of the methods the Department of the Environment will consider are special awards programs to recognize environmental efforts and the hosting of special public activities designed to encourage public involvement, such as conferences, Earth Day and Environment Week activities.

4. **FOCUS ATTENTION ON SPECIAL ISSUES.**
   It is often more effective to isolate and promote a specific issue than to launch a campaign which attempts to expose a wide range of issues to numerous target audiences. Examples of such issue-specific campaigns include task forces (Task Force on Litter), open forums, and advertising campaigns.

5. **ENHANCE LIAISON WITH OTHER GOVERNMENT AND NON-GOVERNMENT ORGANIZATIONS.**
   It is important that the Department of the Environment coordinate its efforts with the sponsors of other environmental initiatives. The Department should also assume the lead role in encouraging environmental changes within government, for example Paper save, a purchasing policy for products made with recycled materials, car pools, and other initiatives.

4

IMPROVING OUR APPROACHES

ENVIRONMENTAL IMPACT ASSESSMENT

BACKGROUND

As we focus on preventing environmental problems, one of the most powerful tools available is the environmental impact assessment. Environmental assessment is a planning tool which can be used to identify the options, evaluate the implications and make the best environmental choices. Rather than presenting a roadblock to progress, environmental assessment is like a system of maps and check points to ensure that development decisions consider the environment.

Environmental assessment is not simply a means to assess an activity at the pre-implementation stage, nor is it the definitive solution to environmental problems. Instead, environmental assessment is one aspect of a comprehensive environmental protection plan. This means the process cannot end when a development decision is reached. The process must often include follow-up monitoring and evaluation to build upon the successes, learn from the failures and gain confidence that the process is working.

Within its mandate to manage, protect and enhance the environment, the Prince Edward Island Department of the Environment is responsible for ensuring that development activities are fully evaluated with respect to the acceptability of their environmental implications *before* commitments to proceed with those plans are made. This is achieved, in part, through the Environmental Impact Assessment Process.

LEGISLATIVE MANDATE

In 1988, the Environmental Protection Act introduced the requirement for an assessment of projects and undertakings before development could proceed. Section 9 of the Act requires that a person receive written approval to proceed with a proposed undertaking prior to its initiation. This section also gives the Minister of the Environment the power to require a developer to conduct an environmental impact assessment and submit an environmental impact statement.

Interim Guidelines for the process were introduced in August 1988. These guidelines were intended as an interim step that would assist in the implementation of the assessment process and ensure compliance with the Act.

The Federal Environmental Assessment Review Process (EARP) applies to many of the projects that are reviewed within the provincial process. The federal process applies to all federally initiated projects and includes private projects that receive federal financial assistance and those that could require some regulatory decision through federal statute. Although there has been some duplication of process, cooperative agreements have usually been reached to allow for one level of government to lead the review process while supplying the information to the other government to assist it in reaching a decision.

The Prince Edward Island Environmental Impact Assessment Process outlines a series of steps and decisions through which a project proceeds:

- proponent files written proposal;
- environmental technical review committee screens project proposal;
- screening determine environmental acceptability of project proposal and assesses the need for a formal environmental impact assessment;
- in consultation with technical review committee and with input from the public and interest groups, department prepares guidelines for environmental studies;
- public involved in study review;
- if deemed necessary, Minister of the Environment appoints an independent panel to hold public hearings and make a recommendation concerning the proposal;
- Minister of the Environment makes decision concerning the proposal.

PURPOSE

The purpose of environmental assessment is to assure that from the early stages of consideration and planning of undertakings, the environment will be considered before decisions are made.

PRINCIPLES

Certain principles are fundamental to any environmental assessment process to ensure that it is an effective decision-making mechanism. These include the concepts of public consultation, fairness, accountability, comprehensiveness, firmness and flexibility.

1. In order for an environmental assessment process to be successful, there must be a provision for the public to be actively involved. Opportunities for involving the public through a variety of mechanisms, including written comments and direct participation in public forums must be clearly defined. As well, the process must balance reasonable time frames for public consultation with the genuine concern of the proponent to move through the process efficiently.
2. Environmental assessment must be an objective process and be applied fairly. The process must be predictable so that the proponent knows what the process will require ahead of time.
3. Decisions under the environmental assessment process are made by the Minister. Decisions and recommendations are given in writing and are accessible to the public.
4. Activities should be assessed from the stand point of construction and operation, including short-term, accumulative and long-term impacts.
5. The process must be firmly applied and enforced, and ensure that adequate information is available for informed decision-making. Information and methodologies must be consistent but flexible and scaled appropriately to the relative size and impacts of the activity.

EXPERIENCE TO DATE

Since the Interim Guidelines were introduced in August, 1988, about forty written proposals have been filed annually pursuant to Section 9 of the Environmental Protection Act. In addition, numerous enquiries were made by developers concerning their proposed activities. Preliminary screening of some proposals concluded that they were not undertakings pursuant to the Act and therefore exempt from the assessment process.

The environmental impact assessment process is administered by the Environmental Impact Assessment Coordinator in accordance with the Act and Interim Guidelines. It is the Coordinator's role to ensure sufficient information is supplied to determine whether a project is environmentally acceptable and to make a recommendation to the Minister. In making a recommendation the Coordinator relies on the input of an Interdepartmental Technical Review Committee consisting of representatives of resource management agencies from both the provincial and federal governments.

To date, the Environmental Impact Assessment process has generally limited the assessment of biophysical impacts on the environment. The federal assessment is broader and includes socio-economic considerations.

Public notices are not issued automatically when a project proposal is filed. Generally, the public is consulted when it is perceived that there may be public concern. There are different views as to who should represent the public and what level of public response constitutes significant concern.

The review and approval process often comes into play too late, after many decisions related to the project have been finalized. By that time, proponents have made critical planning or financial decisions outside the formal

process and are disconcerted when called upon to reconsider.

FUTURE DIRECTIONS

The environmental impact assessment process to date has been a very effective tool in assisting sustainable economic development and preventing environmental damage. As with any process, continuous improvement and updating are necessary.

Although both the provincial and federal governments are involved in environmental assessment, recent court decisions and federal legislative initiatives have created confusion about the validity of the assessment processes and the respective roles of each government.

The time involved in determining who the lead agency is and tardiness of reaching decisions through the federal process has been identified as a concern by proponents.

RECOMMENDATIONS

1. Conduct an independent review of the environmental impact assessment process to evaluate its efficiency and effectiveness.
2. Develop and implement regulations to replace the present "interim guidelines" that were introduced in 1988.
3. Develop appropriate information on brochures to guide proponents through the process with a view to improving the information provided in project submissions and in conducting environmental impact assessments.
4. Clarify the opportunity for public involvement in the decision-making process.
5. Develop class assessments in an effort to expedite projects and potential impacts that are similar in nature.

EFFECTIVE ENFORCEMENT

Background

The Department of the Environment is directly responsible for or assists with the enforcement of a wide range of legislation aimed at facilitating the maintenance for a healthy environment. These statutes and their accompanying regulations establish environmental protection provisions that are comprehensive. (Note Appendix 1 at the end of this section.)

The Environmental Protection Act attempts to present clear statements as to what activities are not allowed and also sets out requirements for approval of certain activities within its jurisdiction. For example, Section 20 of the Act states that "no person shall, without permission of the Minister, discharge or cause or permit to be discharged, any contaminant into the environment". The Act provides for the issuance and monitoring of permits and licenses for a variety of activities which, in many cases, prescribe the terms and conditions that must be complied while the carrying out that activity.

The Minister of the Environment has the final responsibility for the administration of the environmental statutes. The Minister, in turn, is accountable to the Legislative Assembly of the Province.

Department of the Environment staff are responsible for the day to day administration of the various environmental statutes and programs. Professionally and technically trained personnel work in the areas of water and wastewater engineering, fish and wildlife biology, hydrogeology, air and solid waste management, water pollution investigation and enforcement. In many cases, staff not only implement the programs and act as extension workers, they also serve the dual role as enforcement officers. For example, the Fish and Wildlife Conservation Officers spend a good portion of their time working in the capacity of wildlife technicians, hunter safety and wildlife education instructors.

As part of program implementation, departmental staff serve two distinct functions, one of inspection, permitting and monitoring, and the other of investigation. Although, these two duties are distinctly different they frequently overlap and are often carried out by the same person. The Department views inspection, permitting and monitoring as primarily preventative functions designed to avoid non-compliance and to discover non-compliant practices and correct them. Where inspection and monitoring identify environmental violations the response by the Department of the Environment is determined by the nature of the offence, particularly the actual or potential impact on the environment.

Investigation, on the other hand, is the process of verifying and substantiating suspected offences. Investigation of possible violations involves the application of special skills. First, the investigator must be totally familiar with the intricacies of the legislation he or she is working with in terms of establishing a violation. They must be fully aware of the legal constraints and limitations placed on the exercise of power used during the course of an investigation.

The type of enforcement response employed in any investigation will generally fall into one of two broad categories, administration or litigation. An administrative response may take the form of a written warning, permit suspension or cancellation, a ministerial restoration or remediation order or a court injunction. The litigation response would involve the laying of formal charges against the person or company believed to be responsible for the illegal act.

In conducting an investigation of any environmental violation there are a number of factors that have to be taken into account;

a) has there been a violation of an Act or Regulation?
b) has there been a violation of the terms of a permit, license, order or other legislative provision?

c) has the offender previously been convicted of an offence or received a formal warning?
d) does the offender demonstrate a sincere and cooperative attitude, and have there been reasonable efforts made to remedy or lessen the consequences of the offence?
e) what is the nature and extent of damage or potential damage to the environment or a resource?
f) does the evidence support the reasonable likelihood of obtaining a conviction?
g) is there a history of noncompliance: have methods of enforcement other than prosecution proven ineffective?
h) have the actions of the offender endangered the lives or the health and safety of innocent people?
i) was the damage to the environment or a resource deliberate?

The Environmental Protection Act was rewritten in 1988. This version saw the power and scope of authority to deal with environmental violations greatly expanded from that of the previous Act. For the first two years after the Act came into effect considerable effort and time were spent publicizing the requirements of the legislation with less emphasis on legal enforcement. In the past two years both administrative and litigation enforcement methods have been used more extensively.

For example, in 1990 and 1991, on a Department-wide basis, there have been 135 and 139 cases, respectively, where enforcement actions of one sort or another were exercised. (Note Appendix 1.)

While enforcement may be only one of several factors responsible, the Department of the Environment has noted a dramatic increase in the level of public awareness and interest in environmental legislation in recent years.

Although, environmental protection is clearly a priority and is considered essential to the long-term well-being of Prince Edward Island, the need for economic development and natural resource use is also recognized. The delicate balancing act can only be achieved through cooperation and participation by all parties involved.

PURPOSE

Some general principles and criteria will govern the way the instruments of enforcement are used to achieve the goals:

1. The Department of the Environment will seek compliance with its legislation in a manner that considers the greater public interest and that is consistent across the province, using compliance and enforcement options that are clearly founded in law.
2. On the basis of the polluter pays principle individuals and companies must be held responsible for their actions and the costs associated with prevention and remediation of environmental damage.

MEASURING OUR PROGRESS

Keeping in mind that prosecution is only one of several enforcement instruments used to ensure compliance and to deter future violations, the number of successful prosecutions is a useful measure of the effectiveness of legislation and a measure of the emphasis placed by the regulatory agency on compliance. While the number of legal actions is a useful measure, it may be more informative to assess the level of compliance with the application of the intent of that legislation.

Public participation in and public approval of the goals and objectives of the legislation is paramount to the success and short and long term effectiveness of that legislation. In the end the health of the environment is the only measure that really counts.

STRATEGIES AND FUTURE DIRECTIONS

1. **ENFORCE CONSISTENTLY.**
   Enforcement of environmental legislation will continue to be carried out in a fair, reasonable and consistent manner following departmental enforcement policies and compliance assessment procedures. Each reported or suspected violation will be investigated appropriately with the view that legal action will or may be taken. While the application of discretion and judgment on behalf of the investigating officer or the regulatory agency should never be taken away, it is critical that the Department be and be seen to be consistent in its approach to environmental enforcement.

2. **INCREASE PUBLIC AWARENESS AND PUBLIC INVOLVEMENT.**
   Although ignorance of the law is generally not considered a credible defence, the Department recognizes the responsibility incumbent upon it, as the regulatory agency, to take all reasonable steps to advise the public of the requirements of the environmental legislation. The public will be regularly advised of its compliance and enforcement activities. The Department will promote environmental education by various means including media, presentations at schools, meetings or other community based initiatives. The Department will also promote increased public involvement by encouraging assistance and participation in enforcement activities and the reporting of violations.

3. **COMPLEMENT OTHER ENFORCEMENT INITIATIVES**
   Every opportunity will be taken to cooperate with environmental legislation and enforcement capabilities of other federal and provincial agencies. It is recognized that there is frequently a significant overlap in jurisdiction and there is a need for a coordinated approach in order to fully utilize available extension and enforcement resources.

4. **IMPROVE COMMUNICATION AND COOPERATION BETWEEN OFFICERS.**
   The Department will promote improved communications between enforcement personnel both within and outside the Department (i.e. Federal Fisheries Officers). Avenues to be explored to achieve this objective will include the use of compatible radio systems, regular meetings of all enforcement staff and a central data bank of information on environmental violations. The Department will provide the necessary flexibility for improved inter-branch cooperation with investigations. More efficient use of enforcement related equipment through an organized sharing program would be beneficial.

5. **IMPROVE SAFETY OF OFFICERS AND PUBLIC.**
   The Department will endeavor to upgrade and educate enforcement staff in matters related to the health and safety of themselves and the public. Of special concern are aspects related to the handling of dangerous goods, first aid and protection during investigations. Officers will, as deemed appropriate, be provided with proper identification including, marked vehicles, uniforms, and identification cards or badges.

APPENDIX 1

LEGISLATION ENFORCED BY THE P.E.I. DEPARTMENT OF THE ENVIRONMENT

- Environmental Protection Act
- Fish and Game Protection Act
- Natural Areas Protection Act
- Emergency Measures Act
- Unsightly Premises Act
- Automobile Junk Yards Act
- Fisheries Act (Canada) and P.E.I. Regulations
- Game Export Act (Canada)
- Migratory Birds Convention Act (Canada)

PARTNERSHIPS

Background

Throughout the history of Prince Edward Island, the spirit of helpfulness and neighbourly support has been a very necessary part of community life. Barn-raisings and quilting bees were common events and served an important purpose in a time when money was scarce and the spirit was willing. There existed a common social and economic need that required close, friendly cooperation. The desire to help and the social pleasures derived in performing necessary tasks were encouraged and generously practiced.

Greater pressures on the environment have made environmental problems and their resolution increasingly complex. Government, alone, does not have enough money or people to meet the challenge. It is clear that collaborative and coordinated action must be directed toward achieving common goals. This renewed Conservation Strategy seeks to develop consensus on specific goals and means of achieving them, and promotes an understanding of the consequences of our actions.

The Department of the Environment is committed to renewing and strengthening both formal and informal, partnerships. Islanders have neither the time - nor should we have the patience - for jurisdictional squabbling between governments or turf wars between interest groups, which impede necessary progress. It will require a lot of agreement with a lot of partners, but to protect our environment and sustain our economy, we must work together.

GOVERNMENT PARTNERS

The federal and provincial governments often have overlapping roles and responsibilities with respect to environmental issues. In general, government can be proud of our solid record of federal-provincial cooperation on environmental topics. When jurisdictions overlap in Prince Edward Island, committees of federal and provincial representatives meet to review and overcome concerns. In many cases, significant duplication of effort is avoided; for example, a multi-disciplinary committee reviews watercourse alteration applications, or federal representatives participate in the technical review stage of the Environmental Impact Assessment process. Special cooperation has been demonstrated on events such as Environment Week, as the federal and provincial environment departments support and coordinate environment-related activities.

The Prince Edward Island Department of the Environment recognizes the essential role of the federal government in dealing with environmental questions at the national and international level.

Over the years, the provincial and federal governments have developed and maintianed a number of cooperative agreements dealing with water quality surveys (stream flow), water quality networks, wildlife conservation and PCB destruction. These initiatives form an important part of the province's resource management and environmental protection effort.

Canada's Green Plan

Late in 1990, the federal government released Canada's Green Plan, a comprehensive national strategy and action plan for sustainable development. The Green Plan marks a fundamental shift in the way the Government of Canada acts on environmental problems. Environmental protection and economic development are seen as mutually supporting rather than mutually exclusive. The Green Plan provides the basis for new and stronger partnerships for achieving sustainable development. Eight broad national environmental goals were established in the Green Plan.

Aspects of the Green Plan have been woven into this Conservation Strategy. The long-term goals outlined by the Prince Edward Island Department of the Environment are linked to the Green Plan goals.

The Coordinating Committee for the

Memoraundum of Understanding on Conservation and Development is a Prince Edward Island committee of federal and provincial officials established to improve communications and coordination of efforts with respect to natural resource conservation and development. Co-chaired by the Atlantic Canada Opportunities Agency and the provincial Department of the Environment the committee deals with issues such as land conservation, water conservation, fish and wildlife conservation, forest conservation, toxic substance management, air quality and public awareness.

Canadian Council of Ministers of the Environment

Prince Edward Island supports the Canadian Council of Ministers of the Environment (CCME) and participates in developing national policies, agreements and protocols. The Department of the Environment derives tremendous advantages from the CCME organization since we are able to benefit from the research, development and technical expertise available in other jurisdictions. Prince Edward Island is able to participate in national and international activities to establish standards and strategies in subjects such as ozone depleting substances, contaminated sites, greenhouse gases, drinking water quality, packaging reduction and air quality.

In March 1990, the Minister of the Environment on behalf of the Prince Edward Island, endorsed the Statement of Inter-jurisdictional Cooperation on Environmental Matters. This statement by the Canadian Council of Ministers of the Environment was supported by all provinces, territories and the federal government and provides a framework for federal-provincial and interprovincial teamwork on environmental matters. Such cooperation will lead to an assurance of consistently high levels of environmental quality and of predictability and stability for economic planning.

PROVINCIAL PARTNERS

Our departmental system of government has contributed to single-sector decision-making. It is vital that mechanisms be developed to improve inter-agency cooperation and ensure that policy planning considers the interconnections of our various resources. Several groups are working to achieve effective integration of resource management activities.

Prince Edward Island Round Table on Environment and the Economy

In 1989, Premier Joe Ghiz appointed the Prince Edward Island Round Table on Environment and the Economy to advise him with respect to environmentally sound economic policies and strategies.

The Round Table is chaired by the Minister of the Environment and includes representatives from the primary industry sectors, environmental organizations, financial and business sectors as well as local government and the academic community. This group advises government on how environmental and economic objectives can be integrated.

Prince Edward Island Environmental Advisory Council

The Environmental Advisory Council is comprised of thirteen members appointed by the Lieutenant Governor-in-Council under the authority of the Environmental Protection Act. They advise the Minister of the Environment on a wide range of environmental matters, including government's efforts to implement the recommendations of the original Conservation Strategy.

The Council coordinates the annual Environment Awards which acknowledge the efforts of environment-conscious businesses, individuals and organizations. An important link with the Prince Edward Island Federation of Municipalities is maintained by their representation on the Environmental Advisory Council.

Environmental Coordinating Committee

This inter-departmental committee of Deputy Ministers meets on a regular basis to exchange information and discuss environmental issues. The primary objective is to ensure communication and coordinated planning between provincial government departments. Government activities in support of the original Conservation Strategy have been coordinated through the Environmental Coordinating Committee. This committee has been an important forum for coordinating input to this renewed conservation strategy.

REGIONAL PARTNERS

The Conference of the New England Governors and the Eastern Canadian Premiers was established in 1973. There have been annual meetings and a variety of resolutions on such issues as energy, acid rain, transportation, tariff reductions, tourism, health, economic development and environment. Prince Edward Island participates in several committees of the Conference. The Northeastern International Committee on Energy (NICE) was established in 1973, and the Committee on the Environment was established in 1984. Most recently, the Committee on the Environment developed position papers on Global Climate Change and Principles of Sustainable Development to be presented to the 19th Conference in 1992.

The Atlantic Ministers of the Environment meet regularly to discuss common concerns. The Ministers deal with such issues as PCB destruction, implementation of the Atlantic Coastal Action Plan (ACAP), the Green Plan, environmental impact assessments, Environment Week, energy conservation, Environmental Partners Fund, environmental enforcement, and contaminated sites.

At the last meeting the Ministers received presentations on an Environmental Legislation Review, and PIER Atlantic (Petroleum Industry Emergency Responses). In November, 1991, the four Atlantic Ministers signed the Atlantic Environmental Accord which further commits the four provinces to work together to resolve environmental issues.

COMMUNITY PARTNERS

Efforts by groups such as the Morell River Management Cooperative, the Montague Watershed Project and the East Prince Wildlife Federation have demonstrated the interest of communities and landowners in coordinating efforts to improve natural resources.

Wetlands conservation is the major goal of the Eastern Habitat Joint Venture under the North American Waterfowl Management Program. Cooperative projects have been undertaken by Ducks Unlimited Canada, the Island Nature Trust, the Fish and Wildlife Branch of the Department of the Environment, the Souris Wildlife Federation and numerous other partners.

The Wetland Stewardship Program focuses on wetland protection and enhancement on private land, and on enlisting landowner support for conservation. Wildlife Habitat Canada and the Fish and Wildlife Branch cooperated with Agriculture Canada and the Prince Edward Island Soil and Crop Improvement Association in the first year of the program. A variety of projects important to wetlands have been undertaken.

Cooperative Watershed Improvement

In 1986, Wildlife Habitat Canada, together with a variety of government agencies and community organizations, launched an intensive five year campaign to enhance, protect and preserve habitats in the Montague/Valleyfield Watershed. The project demonstrated the multiple benefits of cooperative land use management.

The Montague Watershed Project was a highly successful model for coordinating a variety of initiatives including forest management, wildlife management, stream improvement, habitat enhancement, soil conservation,

erosion control and public awareness. Overall direction for the project was provided by a twenty-five member steering committee representing federal and provincial governments, municipalities, non-government organizations and education institutions.

Almost $2 million was generated from partnerships during the five year project. Over 225 people actively participated in activities such as hedgerow establishment, stream enhancement, trail building, fence construction, erosion prevention, salmon stocking and tree planting.

Although funding from Wildlife Habitat Canada expired, a group of concerned landowners have undertaken to continue the work. They formed the Montague Watershed Enhancement Cooperative to ensure that completed projects are maintained and monitored.

Most significantly, the Cooperative has sponsored an Atlantic Coastal Action Program initiative for the Cardigan Bay watershed area. This venture will ensure that the coastal environment in the Boughton-Murray Harbour area will be managed and protected on a watershed basis.

This successful project may serve as a model for cooperation and involvement in integrated watershed improvement. The Atlantic Coastal Action Plan, a Green Plan initiative, is supporting a similar initiative in the Bedeque Bay Area.

STRATEGIES AND FUTURE DIRECTIONS

1. **STRENGTHEN FORMAL AND INFORMAL PARTNERSHIPS**
   The Department of the Environment will work to strengthen the partnerships with others responsible for protecting our environment. There are important opportunities for teamwork and cooperation with the Departments of Industry, Health and Social Services, Education and the Business Development Agency, and other resource management departments including Agriculture, Fisheries & Aquaculture and Energy & Forestry. Unnecessary complications can be bypassed through coordinated efforts.

   Equally important is close cooperation between the province and the private sector, individuals, special interest groups, and local governments.

2. **PURSUE AGREEMENTS WITH THE FEDERAL GOVERNMENT.**
   The Province of Prince Edward Island will pursue opportunities for cooperation on sustainable economic development with the federal government and the private sector. As well, the Department of the Environment will work toward development of a new agreement with Environment Canada, following on the success of the first Water and Economy Agreement.

3. **COORDINATE GREEN PLAN INITIATIVES.**
   The Coordinating Committee on Conservation and Development will coordinate the implementation of Green Plan initiatives in Prince Edward Island.

4. **CONTINUE TO SUPPORT THE CANADIAN COUNCIL OF MINISTERS OF THE ENVIRONMENT.**
   Prince Edward Island has increased its financial support of the CCME and will participate in developing national policies, agreements and protocols to ensure that the goals of this province are addressed.

QUALITY OF SERVICE

Background

The provincial government, through the Department of the Environment, is responsible for ensuring the quality of Prince Edward Island's natural environment. The Department's mandate broadly includes three related and overlapping functions: (1) operations and services, (2) regulations and enforcement, and (3) policy and legislation. In carrying out this mission, Department staff have extensive contact with the general public, municipalities, other government agencies, consultants and students. Our staff advise, inform, regulate, permit, assist, inspect, educate, evaluate, interpret, enforce, instruct and encourage.

On an annual basis, the Department of the Environment responds to 20,000 pieces of correspondence, receives 175,000 phone calls, conducts over 500 inspections, issues about 565 permits and approvals, almost 15,000 licenses, 1,900 registrations, 1,000 certificates, lays 120 charges, collects and analyses over 7,500 samples, and attends 600 meetings. Obviously, we have many opportunities to interact with individual citizens of our province. Each contact contributes to the overall public assessment of the quality of service provided by the Department of the Environment. People have a right to expect excellent service from government. Ultimately, this is an important factor in determining the credibility of the Department, and therefore the influence the Department can have in involving others in environmental stewardship.

Government environment agencies across Canada and internationally, continue to seek the right balance between the views of those citizens who demand more regulation and tighter controls, and those who would eliminate "red tape" and allow self-regulation by resource users. The right balance is difficult to achieve and often means no one is happy with the regulatory agency's position.

But it is the way decisions are reached, approvals are issued, calls are returned, and people are listened to that is important to the individual client. It is the quality of service that is provided, promptness, accuracy, honesty, helpfulness, and simplicity, which can determine the public's satisfaction with and acceptance of Department of the Environment programs and legislation.

Within the context of Government Reform and fiscal restraint, provincial government departments must strive to "do more with less", and to improve the quality of their services using available resources. *Service* means knowing what the customer wants, and responding to that need. *Quality* means doing it right the first time, and continually improving.

STRATEGY

The Department of the Environment will develop a corporate strategy for achieving excellence in service quality. This means developing an ethic and an attitude which ensures a continuous desire to improve the way the client is served. This attitude already exists in some areas, but it is important to build a department-wide client-focused approach in Department policies, procedures and services. Other important benefits include increasing staff satisfaction with their work, increasing opportunities for innovation and creativity, and balancing the cost of service with available resources.

Elements of the quality of service strategy may include:

- client surveys
- staff training
- quality circles (procedure reviews)
- improved public communications
- user-friendly forms and applications
- setting service standards
- coordination of licenses and permits.

These elements, and others to be developed by the staff and clients, will provide a basis for a Service Quality Improvement Plan for the Department of the Environment.

5 THE NEXT STEPS

This Consultation Draft, *Stewardship and Sustainability*, is the first step in renewing the Prince Edward Island Conservation Strategy. It defines the issues behind the environmental challenges, entrenches the principles that will shape the response to those challenges, and proposes an action plan to implement solutions.

The document is, above all, a proposal. It challenges Islanders to discuss and debate the issues, priorities and strategies and to participate in implementing the solutions.

The Prince Edward Island Department of the Environment will undertake a program of consultation to ensure that the final report sets a unified and comprehensive direction for making the transition to sustainable development in Prince Edward Island. Public consultation workshops will be held in the fall of 1992.

All branches and levels of government, business and industry, conservation organizations and individual Islanders are invited to actively participate in creating a future in which the environment and the economy support each other. There are many points of view and many interests in economic and environmental issues. Each of these is important. It is essential that the renewed Conservation Strategy be the expression of a broad consensus and of our common will.

Islanders must not forget that we are embarking on a long-term process of change and transition. Together, we can shape the future with actions and decisions that will lead to the proper long-term management of resources and the protection of the environment.

SOIL EROSION CONTROL

1. Continue to Demonstrate Soil Erosion Control Measures:
   - applied agronomic and structural techniques for erosion control;
   - crown-managed properties should be models of good farming practices.
2. Continue to Provide Incentives for Soil Erosion Projects:
   - enable farmers to off-set short term costs;
   - take erodable land out of production;
   - establish and maintain buffer zones along streams;
   - use conditional funding to encourage participation in soil conservation.
3. Conduct Further Research:
   - economic information about on-farm and off-farm impacts;
   - new technologies and information for farmers.
4. Reduce Impact of Highway Construction:
   - protect surface waters from sedimentation;
   - implement soil erosion control plans for maintenance and construction activities;
   - use and maintain silt traps in the ditches of clay roads;
   - schedule construction to allow a vegetative cover to be established before the fall.
5. Require Construction Site Erosion Control Plans:
   - development should not proceed without approved erosion control plans.

SUSTAINING WATER RESOURCES

Water Resource Protection

1. Reduce Agricultural Impacts on Water:
   - develop minimum standards for animal manure storages;
   - promote a Code of Good Practice for manure management;
   - more research on impact of fertilizers;
   - develop options to reuce impact of fertilizers;
   - keep livestock out of stream.
2. Prevent Petroleum Contamination of Groundwater:
   - develop above ground fuel tank regulations;
   - develop soil and water remediation guidelines.
3. Develop Safe Drinking Water Regulations:
   - ensure quality drinking water in public and municipal systems;
   - establish well head protection zones near public water supply wells.
4. Encourage Cooperative Watershed Improvement:
   - coordinate efforts toward watershed improvement using an ecosystem approach;
   - maintain separation distances between watercourses and development projects or activities.
5. Reduce the Impact of Watercourse Alterations:
   - develop construction guidelines;
   - require erosion control plans;
   - evaluate the impact of artificial impoundments.
6. Promote Water Research in Prince Edward Island.

7. Conduct Water Resource Monitoring:
   - use an "index watershed" approach.

Water and Sewer Servicing

1. Improve Water and Sewer Planning for New Subdivisions:
   - develop specific criteria for on-site or central systems;
   - regulate the design and installation of septic systems and required lot sizes;
   - include water and sewer services in all community plans.
2. Investigate Options for Water and Wastewater System Funding:
   - consider alternatives to the Environmental Services Assistance Program.
3. Promote Water Conservation Practices:

Coastal Resources

1. Protect Sensitive Coastal Features.
2. Increase Public Awareness of Coastal Resources.

MANAGING OUR WASTES

1. Implement Additional Stages of the Waste Reduction Program:
   - reduce packaging waste by 50% by 2000;
   - improve present disposal sites;
   - develop a conserver attitude;
   - encourage source separation of waste;
   - increase public awareness.
2. Carefully Manage Specific Wastes.
3. Reduce Littering and Illicit Dumping:
   - establish a Task Force on Litter.
4. Provide Financial Incentives:
   - the more garbage, the more you pay;
   - provide seed money for waste reduction projects.
5. Improve the Efficiency and Emissions of the Energy From Waste Plant:
   - remove non-burnable and compostable materials;
   - remove batteries from the waste;
   - operate at maximum efficiency;
   - conduct a comprehensive evaluation of emissions.

CONSERVING OUR ECOSYSTEM

1. Develop a Provincial Wildlife Policy:
   - protect wildlife and enhance wildlife habitats.
2. Increase and Improve Habitats:
   - manage crownlands to promote ecological diversity;
   - establish green belts and hedgerows.
3. Encourage Watershed Improvement Projects:
   - promote integrated management.
4. Develop and Implement a Salmonid Enhancement Program.
5. Implement the Significant Environmental Areas Plan.
6. Public Awareness and Involvement.

PROTECTING OUR ATMOSPHERE

1. Implement Air Quality Regulations.
2. Honour International Obligations.
   - National Air Quality Agreement;
   - reduction agreement on sulphur dioxide;
   - bilateral agreements on pollutants such as CO_2, NOx, VOC, and ozone depleting substances.
3. Develop CFC Regulations.
4. Investigate Increased Air Quality.
5. Inform Islanders about Air Quality Issues.

SUMMARY OF STRATEGIES AND FUTURE DIRECTIONS

PUBLIC INVOLVEMENT

1. Increase Awareness of Environmental Issues.
2. Coordinate Specific Efforts to Target the Formal and Informal Education Audience.
3. Increase Public Involvement in Individual and Collective Environmental Efforts.
4. Focus Attention on Special Issues.
5. Enhance Liaison with Government and Non-Government Organizations.

ENVIRONMENTAL IMPACT ASSESSMENT

1. Review and Evaluate the Environmental Impact Assessment Process.
2. Develop and Implement Regulations.
3. Develop Publications to Guide Proponents through the Process.
4. Identify Opportunities for Public Involvment.
5. Develop Assessments for Generic Projects.

EFFECTIVE ENFORCEMENT

1. Enforce Legislation Consistently.
2. Increase Public Awareness and Public Involvement.
3. Complement other Enforcement Activities.
4. Improve Communication and Cooperation Between Officers.
5. Improve Safety of Officers and Public.

PARTNERSHIPS

1. Strengthen Formal and Informal Partnerships.
2. Pursue Agreements with the Federal Government.
3. Coordinate Green Plan Initiatives.
4. Continue to Support the Canadian Council of Ministers of the Environment.

QUALITY OF SERVICE

1. Improve the Quality of Service Provided by the Prince Edward Island Department of the Environment.